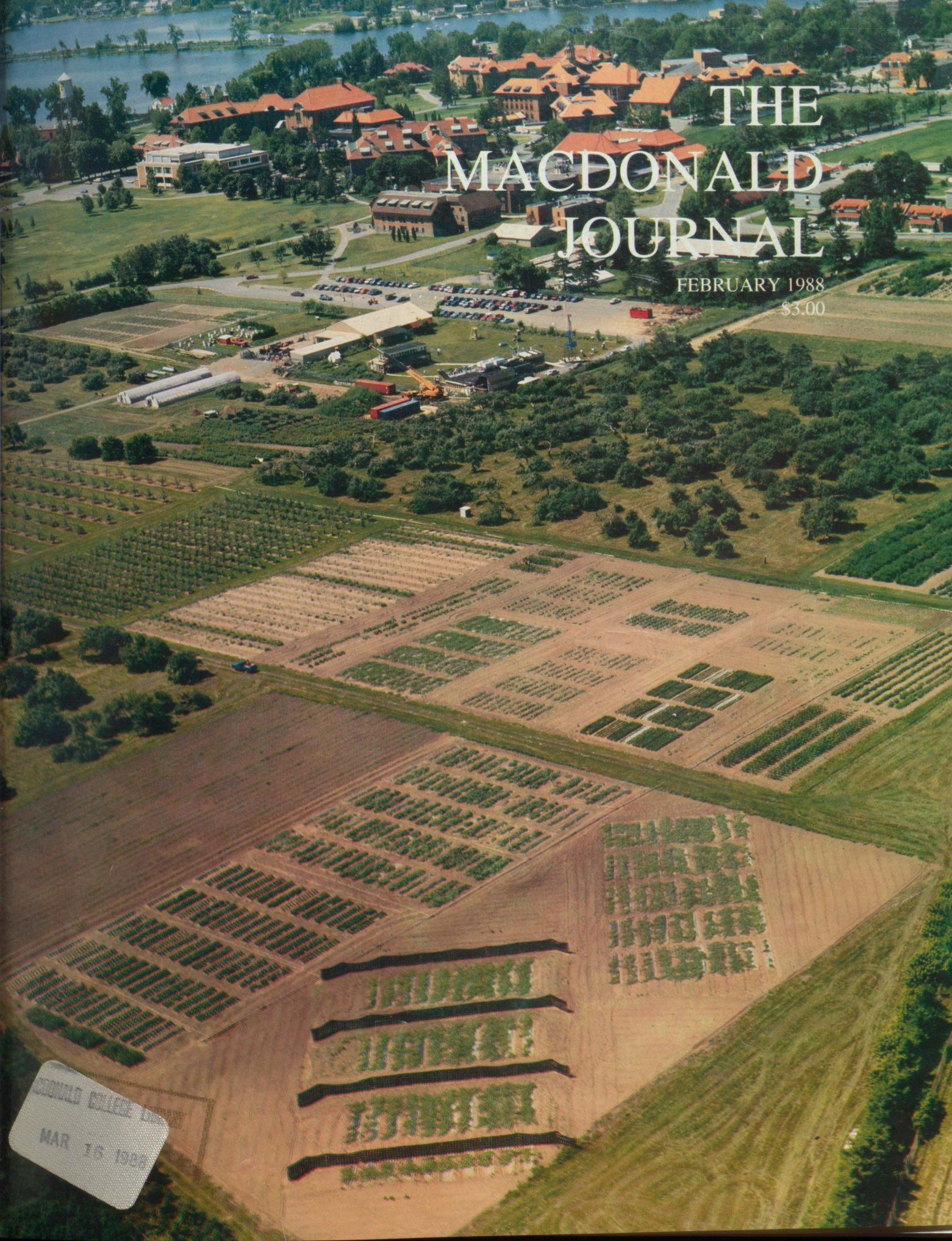


An aerial photograph of Macdonald College and its surrounding agricultural landscape. The college buildings, featuring red-tiled roofs, are situated in the upper portion of the image, adjacent to a body of water. Below the campus, there are large, organized agricultural fields, likely for crop production or research, showing distinct rows of plants. The foreground is dominated by these fields, which are partially covered with green crops and other vegetation. The overall scene depicts a blend of academic and agricultural environments.

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# THE MACDONALD JOURNAL

February 1988

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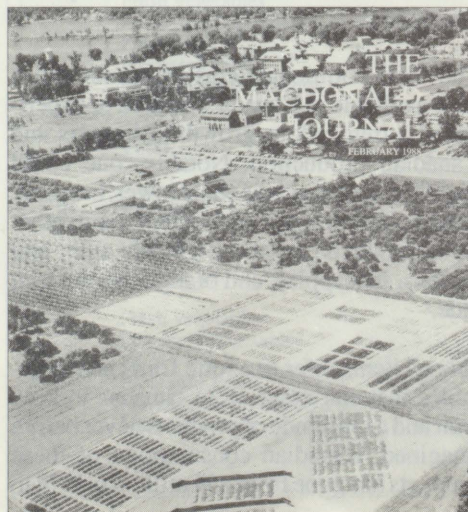
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An aerial view of the Horticulture Research Area at Macdonald College looking west along Highway 20. In the foreground is a windbreak experiment. The middle area shows vegetable trials and orchards, and in the background may be seen the college buildings. A Guest Editorial by Macdonald graduate Danny Dempster on the Canadian Horticultural Scene sets the stage for this special Horticulture issue. Features by staff and present and former students in the Department of Plant Science and by staff in the Department of Agricultural Engineering include such topics as Horticultural research, teaching, postgraduate studies, and careers. Lots of good reading! We take this opportunity to welcome Linda Jacobs Currie as a regular contributor to the Journal and look forward to reading her "Issues in Human Nutrition."



# Guest Editorial

## The Canadian Horticultural Scene

by Danny Dempster, BSc(Agr)'72

Executive Vice-President, The Canadian Horticultural Council

The Canadian horticultural industry is one of Canada's most diverse, complex, and dynamic agricultural-industrial sectors. Aside from the obvious wide range of commodities, one can add the significant factors of climate and geography as complicating variables. Across Canada, the industry has different levels of regional importance. In B.C., for example, horticultural production accounts for one quarter of farm product sales. In Quebec less than 10 per cent of farm income is from horticulture, but the value of production has increased by two-thirds since 1980. The purpose of this editorial is to establish where the industry is in 1988, what are the changing trends, and to consider the potential impact of the Canada/United States Trade Agreement.

In 1986 the farm gate value of horticultural production in Canada amounted to \$1.55 billion. That was 50 per cent greater than in 1980. Approximately 40 per cent of Canadian fruit and vegetable production is targeted for the processing sector, leaving a balance of \$680 million for the fresh market, both domestic (\$480 million) and export (\$200 million).

The value of our currency has had a positive impact on exports while providing greater protection against imports. Nevertheless, despite the weakness of our dollar against the U.S. dollar since 1978, there has been an increase of \$1.2 billion in imports of horticultural products, especially in fresh fruits and vegetables.

With regard to fresh fruits and vegetables, imports play a significant role in our domestic marketing. Since 1974, on a volume basis, they have doubled; on a dollar basis, they have grown from \$395 million to \$1.56 billion in 1986.

Contrary to popular belief, a significant percentage of the imported products are of a class or kind produced in Canada. Approximately \$400-\$500 million are imported during our domestic season - that is, imports in season compete on a 40-50 per cent market share basis depending on the commodity.

Remaining horticultural imports provide products not otherwise available in Canada.

Approximately 61 per cent of all horticultural imports into Canada originate in the United States. On the export side, 68 per cent go to the U.S. market. The growth in exports of horticultural products since 1978 has been \$350 million. The major gains have been in processed frozen vegetables, maple products, potatoes, vegetables, and floriculture and nursery products. These gains were made in the face of some fairly high U.S. tariffs and other significant forms of trade restrictive measures.

### Consumer Trends

Over the last decade, there has been a significant increase in countries vying for the traditional Canadian or U.S. market share in Canada. As well, there has been a tremendous shift in the market demand towards fresh produce (350 lbs/capita in 1973 vs 485+ lbs/capita in 1987), new products, and hot "traditional" products. This has been accompanied by a decrease in demand for the "old standbys."

There has also been a dramatic increase in demand for floriculture and nursery products. In recent years we have seen our marketplace become a home for products from many "new" countries. This is linked to the Canadian ethnic mosaic and the many new immigrants.

The "hot" traditional items are commodities long available in Canada which have experienced a tremendous growth in imports and Canadian production. Notably, one could highlight crops such as cauliflower, broccoli, lettuce, mushrooms and celery (and other salad products) on the vegetable side; and melons, pineapples, and oranges on the fruit side.

"New" items refer to exotic fruits and vegetables that can range from bananas to kiwi fruit and a multitude of products never before imagined. Canadian consumption of these products has gone from \$54 million in 1974 to

+\$225 million in 1986. Excluding bananas, the increase for "new" items over the 10-year period is over fivefold. Although many of these products can not be grown in Canada, there are some very real opportunities for Canadian producers of some vegetables.

On the down side of the demand equation "old standbys" are commodities such as rutabagas, cabbage, plums, and prune plums to name a few. Concurrently, there has been a consumer shift away from some "traditional" items, such as domestically produced apple varieties in favour of imported granny smith apples.

Our traditional export markets have been under severe pressure. The processing fruit and vegetable industry has been, on balance, stagnant in growth and facing stiff competition from Third World countries, most notably in canned products such as tomatoes, mushrooms, pears, and peaches. While demand for canned products is being increasingly replaced by increased demand for the frozen form, fresh produce appears to be the major winner.

### Potential Impact of Free Trade

Federal and provincial initiatives impact on marketplace dynamics. Perhaps none creates more confusion or fear than the prospect of "free trade" with the United States. What is in the agreement that affects horticulture?

There are two obvious areas which impact directly on the Canadian industry. First is the agreement on grapes and wine which means Canada will change its alleged discriminatory listing policies, assuming the provinces will agree. The recent G.A.T.T. ruling reaffirms why Canada agreed to this in the bilateral negotiations. This will mean an accelerated change in the type of grape and wine industry Canada will have. In part, this may mean fewer growers or wineries which likely would have occurred in any event. This industry, more than any other, will be faced with adjustment, and in the very immediate future.



The other major area relates to tariffs. Tariffs will be eliminated between both countries over a 10-year phase-in period. Producers and processors on both sides of the border are equally nervous depending on their region and commodity. Consequently, it will undoubtedly have different impacts.

On balance, there will be opportunity for both countries. For some sectors, it may simply accelerate what the market demand ultimately would have done further down the line. If you produce commodities that consumers want in both countries, there will be some growth. On the other hand, given the multitude of new products available, it is unreasonable to assume people will buy something simply because it is produced. As with the grape and wine sector, rationalization will simply be speeded up.

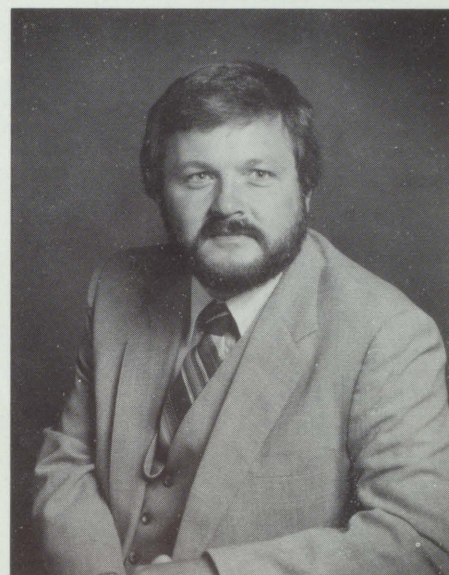
### Conclusion

If you are in horticultural production today, you likely will be in it either on a part time or a full time basis. If you are in the first category, it is hoped that you have other income sources which will sustain you. If you are in the latter category, you will either work more cooperatively with other growers to more effectively market your product or you will get bigger. If you become bigger, how will you survive?

Simply put, you will have to meet consumer demand for new products and high quality. This means better product treatment (such as precooling, packaging) from farm gate to dinner plate. Wholesalers and retailers who buy the produce will also be looking at quantities in sufficient volume and with continuity of supply. Producers and processors will have to try and meet these challenges, and to compete with an increasing selection of imported products as well. The entire industry will be called upon to continue to demonstrate its resourcefulness in serving the needs of the Canadian and export market in the years ahead.

### Danny Dempster

When someone says "I was one of the quieter students in my class," one is never quite sure whether that person is being serious or not. No doubt Danny Dempster's fellow BSc(Agr)'72 classmates would have a more definite opinion! Danny grew up in Farnham, Quebec, and told us that his father spent his entire life associated with the Quebec apple industry. Danny majored in Agricultural Economics and after graduating from Macdonald he became an Assistant Agricultural representative in Shawville. He was also a Can-farm representative in Guelph, Ontario, and Fredericton, N.B., until 1977 when he followed in his father's "horticultural" footsteps and joined The Canadian Horticultural Council and Canadian Fruit Wholesalers Association in Ottawa. He has been their Executive Vice-President since March 1983.



We are grateful to Danny Dempster for his Guest Editorial which we feel sets just the right tone for the special articles on Horticulture that follow.

#### Canadian Trade in Horticultural Products

| A) Imports             | 1978           | 1986           | Growth '86<br>over '78 |
|------------------------|----------------|----------------|------------------------|
|                        |                | (Million \$)   |                        |
| Fresh vegetables       | 303.7          | 606.8          | 303.1                  |
| Processed vegetables   | 127.5          | 192.4          | 64.9                   |
| Fresh Fruit            | 430.0          | 954.0          | 524.0                  |
| Processed Fruit        | 301.1          | 464.0          | 162.9                  |
| Floriculture & Nursery | 60.0           | 131.8          | 71.8                   |
| Wines                  | 136.7          | 247.8          | 111.1                  |
| <b>Total</b>           | <b>1,359.0</b> | <b>2,596.8</b> | <b>1,237.8</b>         |
| B) Exports             | 1978           | 1986           | Growth '86<br>over '78 |
|                        |                | (Million \$)   |                        |
| Fresh vegetables       | 37.8           | 125.2          | 87.4                   |
| Processed vegetables   | 41.7           | 132.0          | 90.3                   |
| Fresh Fruit            | 38.0           | 75.0           | 37.0                   |
| Processed Fruit        | 26.5           | 60.0           | 33.5                   |
| Floriculture & Nursery | 3.0            | 61.0           | 58.0                   |
| Maple Products         | 11.1           | 55.3           | 44.2                   |
| <b>Total</b>           | <b>158.1</b>   | <b>508.5</b>   | <b>350.4</b>           |



# The Horticulture Research Area

*The Canadian Horticultural Society*



by Professors D. J. Buszard and K.A. Stewart  
Department of Plant Science

The last decade has seen a multitude of changes in the horticulture section of the Department of Plant Science at Macdonald College. Staffing changes have meant four new faces since 1978: Drs. Buszard, Donnelly, and Stewart, and Mr. Gerald Chevrier. Dr. Jean David, who most of you will remember, retired in August 1987.

The Horticulture Research Area has undergone a complete transformation. This began with campus renovations in the mid 1970s and construction of a new Horticulture Services Building when the old Barton Barn was converted into a library connected to the Macdonald Stewart Building.

The new horticulture building comprises cold stores and controlled atmosphere storage facilities for our apples and research use, a field laboratory, a grading and sales area and a machinery shop. Soon after this build-

ing was constructed the whole research area was fenced and work began on renovating the orchards and vegetable research plots. Two plastic greenhouses have been built and are used for teaching and research, particularly hydroponic vegetable crop production. When Dr. Buszard arrived in 1980 she began a program of orchard renovation, replacing the old standard trees, many of which were more than 40 years old, with dwarf and semi dwarf trees.

In 1982 the Diploma orchard was planted using trees on M26 rootstocks, trained as palmettes on a three wire trellis. This orchard was designed and established as a class exercise by students in the Diploma program. It is now used for teaching and research. A fruit demonstration area has been set up to show the range of tree and small fruits which may be grown in Quebec, including a collection of arctic raspberries from northern Sweden.

Since 1982 four more orchard sections have been replanted with 1,700 dwarf and semi dwarf trees. These trees were planted as part of a research program on apple replant disease, a problem for many fruit growers in the province. The orchards use different tree training systems to provide a showcase of the techniques used in modern fruit growing for students and external visitors to the area.

The Horticulture Research Area is also used for work on ornamental perennials (as part of a nine site, Quebec wide, trial of ornamentals), raspberries, strawberries, and vegetables. Vegetable research conducted by K.A. Stewart and John Argall is centred on earliness and extending the cropping season to maximize returns. Currently, mulch and row cover or tunnels are being tested on muskmelons to produce a growing formula as part of a new crop development project for Agriculture Canada. Artificial windbreaks



have improved yields of tomatoes, peppers, and melons. Variety trials on cucurbits are being carried out as part of the Quebec Ministry of Agriculture, Fisheries and Food (MAPAQ) network, and trials on asparagus hardiness are currently underway.

Recently trickle irrigation was installed in the area, and this system is being used for research projects in several crops.

The Horticulture Research Area is a marvelous tool for teaching, research, and extension work - probably the finest in Canada. We are very lucky to have such an excellent facility, close to the main buildings on the campus, and so convenient for the students to visit during their classes.

In order to get the best out of the field program basic science must also be emphasized and to this end increased laboratory studies are being undertaken. Drs. Buszard and Stewart share a lab, which also houses their graduate students. Dr. Donnelly is in charge of the Department's tissue culture facilities.

Teaching, too, has changed with new staff members and in response to student requests. This can be seen, in particular, in the two greenhouse, courses being offered for the first time in 1988.

### Horticultural Teaching

Horticulture, one of the Plant Science orientations, is a three-year course. Details of the orientation are outlined below:

#### Year I

##### Fall Term

Biochemistry I  
Biochemistry Laboratory  
Principles of Animal Science  
Principles of Plant Science  
Principles of Soil Science

##### Winter Term

Plant Anatomy & Histology  
Genetics  
Microbial World  
Introductory Plant Pathology  
Soil Fertility

#### Year II

##### Fall Term

Principles of Economics  
Systematic Botany  
General Entomology  
Plant Propagation  
Tree Fruit Production

##### Winter Term

Economics of Agriculture  
Plant Physiology  
Genetics Laboratory  
Statistical Methods I  
Elective

#### Year III

##### Fall Term

Small Fruit Production  
Landscape Plants  
Vegetable Production  
Postharvest Technology  
Seminar  
Phytopaths & Diseases

##### Winter Term

Weed Biology  
Greenhouse Crop Management  
Greenhouse Systems  
Seminar  
Elective  
Elective\*

\*Students interested in becoming members of l'Ordre des Agronomes du Québec are advised to take Economics of Marketing.

### Research: Fungicides

Fungicides are applied at 7-10 day intervals to control blights of carrot and celery. Fundamental forecasting systems are being developed to time fungicide application. These systems are formulated on the basis of inoculum, environment, and host factors influencing the rate of disease development. Depending on the significance of each factor and based on economics of fungicide application, simple

and complex forecasts are being developed to aid the scouts in the Integrated Pest Management Program for vegetable production in Quebec. Fungicides applied at the wrong time is often a waste. Optimization of fungicide applications reduces health hazards, in addition to savings to the growers.

Professor A.C. Kushalappa  
Department of Plant Science

This program provides a good background in horticulture at the undergraduate level. Graduate training is available in a wide range of areas as can be seen in the article on current graduate students.

The new diploma program at Macdonald College has a strong horticultural component with courses in plant science, vegetable production, fruit production, and floriculture. Diploma students are regularly placed in the Horticulture Research Area as part of their stage in order to obtain all round horticultural experience.



# From Around the World to Horticulture at Macdonald

Of the 258 (162 MSc, 96 PhD) postgraduate students now at Macdonald College, 51 of them are in the Department of Plant Science. Of these, 19 are specifically studying and working on research in Horticulture. These 19 students come from various areas of Quebec, from other provinces and other countries. They add a variety of languages and cultures to our campus, and, together with their advisors, they are also adding an interesting dimension to the research being conducted in Horticulture, be it in apples, raspberries, lettuce, roses, or carrots and celery. The following are brief resumes of the students and their research.

(1) OSAMA ANAS, received his BSc and MSc degrees from Aligarh University in India. He also has an MSc(Agr) from McGill in 1983 and is currently working on his Ph.D. under the supervision of Dr. R. Reeleder. This research involves the study of biotic and abiotic factors affecting the survival of sclerotia of *Sclerotinia sclerotiorum* in soil. Larvae of *Bradysia* sp. (dark-winged fungus gnat) are found to feed on the sclerotia, and they also utilize other plant pathogenic fungi as a food source. Sclerotia damaged by larvae are more susceptible to colonization by mycoparasitic fungi. The salivary secretion of the larvae (found to be high in chitinase) also effects the germination of the sclerotia.

(2) STEWART LEIBOVITCH, BSc (Agr)'85, is working towards his MSc. He has an NSERC (Natural Science and Engineering Research Council) Award and is studying the effect of cane management systems on yield and cane characteristics of the red raspberry under the supervision of Dr. Deborah Buszard.

Raspberries are an unusual horticultural crop since the raspberry plant produces biennial stems, or canes, on a perennial root system. Raspberry plants exhibit a concurrent growth phase of first year vegetative canes, primocanes, and second year fruiting canes, floricanes. It is because of this peculiar life cycle that primocanes and floricanes compete with one another for resources.

A solution to excessive inter-cane competition has been the adoption of suitable cane management systems. Cane management systems can operate by regulating cane density, or they can separate primocanes and floricanes either spatially or temporally. The objective of this project is to examine the effects that several management systems have on yield and cane quality of three raspberry cultivars, and to select the most appropriate cane management system for Quebec conditions.

(3) GERALD MACDONALD, BSc (Agr)'84, is from Antigonish, N.S. He is working towards his MSc under the supervision of Dr. D. Buszard and is continuing on with studies already underway at Macdonald.

Apple replant disease (ARD) is a condition which affects young apple trees replanted in an old orchard site. The only visible above ground symptom is a reduction in growth, and its cause still remains uncertain. Studies at Macdonald College were conducted to determine the effects on growth and yield of apple of the various chemical and cultural treatments to control ARD. The effects of soil borne nematodes and fungal pathogens on apple growth were also studied as possible causal agents in field and greenhouse experiments.

(4) ALINE GRENIER obtained her BSc (Agr) majoring in Soil Science in 1985 but has switched to Horticulture for her Master's studies. Under the supervision of Dr. Katrine Stewart, Aline is interested in using vesicular-arbuscular mycorrhizal fungi to improve yields of onions and carrots on reclaimed organic soils. These soils are inherently low in phosphorus and the VAM fungi may allow the plants to improve the phosphorus uptake. The method of VAM inoculation is a problem with large amounts required. Aline is investigating the use of several gels as support media.

(5) YVES LECLERC received his BSc in Biology from the Université du Québec à Rimouski and is working towards his MSc

under the supervision of Dr. Danielle Donnelly.

Potato plants, like most plants in nature, are associated with vesicular arbuscular mycorrhizal fungi (VAM). VAM symbiosis increases root absorption of phosphorus, water, and increases plant resistance to pathogenic root infections.

The objective of Yves's research is to evaluate the potential of VAM fungi on the acclimatization of potato plants produced *in vitro*. He will also evaluate the field performance of *ex vitro* acclimated plants and *in vitro* produced microtubers.

(6) JAVIER GRACIA GARZA, who is working under the supervision of Dr. R. D. Reeleder, received his BSc in Agriculture, majoring in Plant Protection, from the Universidad Autonoma de Nuevo Leon Monterrey, Mexico.

Javier told us that the subject of his research for his MSc is the pathogen which causes a disease in lettuce in the muck soils of Quebec. *Pythium tracheiphilum* causal agent of the lettuce stunt and two nematodes (*Meloidogyne hapla*, root-knot nematode and *Pratylenchus penetrans* root-lesion nematode) will be studied in order to establish whether or not the presence of the nematodes increases the severity of the disease.

(7) CLARET CLAVIJO, who is on study leave from her institution in Venezuela and is being sponsored by the Venezuelan government and by CIDA, is currently working on her PhD. She is interested in the effects of temperature on plant architecture. Her work carried out on pepper is looking at branching pattern, plant anatomy, growth, and development influenced by cool temperature applied during the pre transplant phase. Claret's supervisor is Dr. Katrine Stewart.

(8) MARTINE KORBAN, a Lebanese student working towards her MSc under the supervision of Dr. D. Donnelly, said that the main focus of her research is to study the effect of mechanically induced stress (MIS)

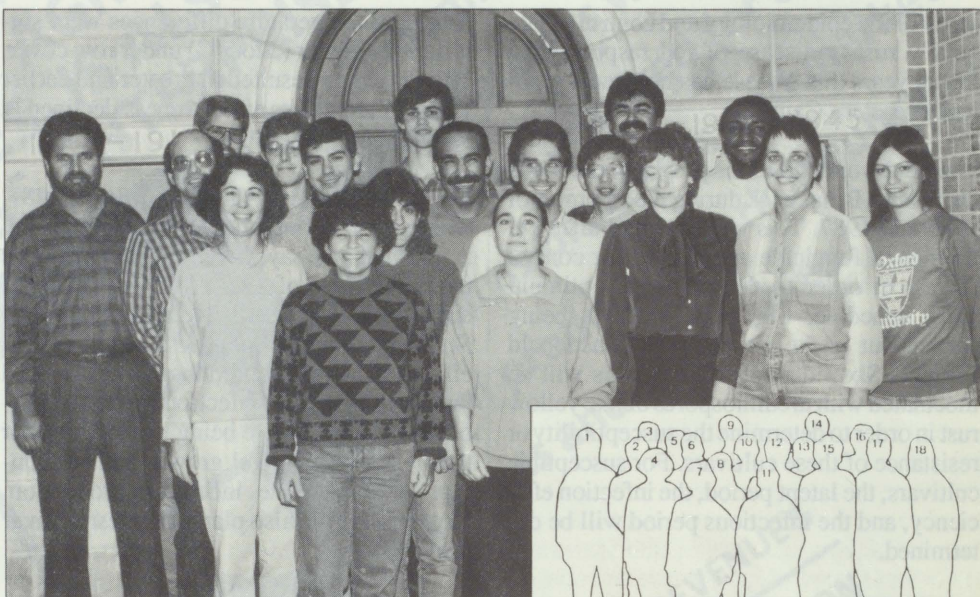


on the various growth components of *in vitro* and *ex vitro* roses (*Rosa hybrida* cv. 'Queen Elizabeth') at various culture stages. It will include an investigation of the internal and external anatomical features such as organ size, leaf shape, growth rates of the various organs, number and distribution of stomata, amount of leaf cuticle, etc. Moreover, some physiological aspects that are affected by MIS will be studied such as the photosynthetic ability, the respiratory activity, the transpiration rate, the pigment content, and the endogenous hormone levels.

(9) LAURENCE TISDALL, from Lachute, Que., received his BSc from Macdonald College in 1987, majoring in General Agriculture. His MSc project, which is being supervised by Dr. D. Donnelly, is to study the anatomical changes that occur during acclimatization of *in vitro* raspberry and strawberry, and to determine if methods could be developed to reduce the mortality rate and the time needed for acclimatization.

(10) SHAHROKH KHANIZADEH, MSc(Agr)'84, from Iran, is studying crop load and its effect on cold hardiness of apple flower bud (*Malus pumila* Mill. cv. McIntosh/M7) for his PhD under the supervision of Dr. D. Buszard. Observations have been made for two growing seasons (1984/85 and 1985/86) on deflowered and flowered trees. Analysis will be done to determine the degree of cold hardiness of deflowered and flowered trees. The data collected from cold hardiness tests and nutrient analysis (amino acid, sugar and total protein) will be correlated to determine the relationship between crop load and cold hardiness.

(11) ODILE CARISSE, BSc(Agr)'87, is from Bedford, Que. Dr. A. Kusalappa is this MSc student's advisor on research which is the beginning of a complete study of the epidemiology of cercospora blight of carrots that will eventually be used to develop a forecasting system. Growth chamber experiments are conducted to study the influence of temperature and leaf wetness on the infection process from which an infection model will be formulated. Field work is conducted to



Postgraduates in Horticultural research are 1. Osama Anas, 2. Stewart Leibovitch, 3. Gerald MacDonald, 4. Aline Grenier, 5. Yves Leclerc, 6. Javier Gracia Garza, 7. Claret Clavijo, 8. Martine Korban, 9. Laurence Tisdall, 10. Shahrokh Khanizadeh, 11. Odile Carisse, 12. Rene Gingras, 13. Ting Zhou, 14. Adolfo Minero Amador, 15. Margie Luffman, 16. Stephen Kimani, 17. Danielle Mathieu, 18. Johanne Cousineau. Absent from photo: Sylvie Jenni.

collect information on disease progress and microclimate which will be used to validate the infection model.

(12) RENE GINGRAS, BSc(Agr)'85, from St. Lambert, Que., is a MSc student supervised by Dr. K. Stewart and is studying the influence of supplementary lighting on hydroponic lettuce during three production seasons: winter, spring and fall. Different light regimes will be imposed and compared to a natural light treatment with regard to the growth and development of the plants.

(13) TING ZHOU, a MSc student from China, is a McGill major fellowship holder, works with Dr. R.D. Reeleder and studies the biological control of white mould of bean caused by *Sclerotinia sclerotiorum*. It was found that a fungus *Epicoccumpurpurascens* can inhibit radial growth of the disease pathogen in petri dish and produce certain antifungal compound(s) to inhibit ascospore germination of the pathogen. The ability of *E. purpurascens* for biocontrol of white mould of bean has been evaluated in field conditions.

(14) ADOLFO MINER AMADOR (from Mexico) got his MSc in Horticulture here at Macdonald College in 1986 and is currently doing his PhD studying the different developmental stages (dormant crowns and emerging spears). This research was undertaken as part of one of the problematics identified by the Canadian Asparagus Research Committee facing asparagus producers in Canada. For this purpose we are evaluating 20 asparagus cultivars from different parts of the world, in terms of productivity and in their adaptability to the harsh Canadian winter and spring conditions. The research is supported by the Canadian Asparagus Research Program, and Adolfo is supported by an FCAR scholarship. Research supervisor is Dr. K. Stewart.

(15) MARGIE LUFFMAN is an employee of Agriculture Canada working at the Experimental Farm in Bouctouche, New Brunswick. She is on education leave from her job and is studying under Dr. D. Buszard's supervision.

Margie's MSc research project deals with a



# From Around the World to Horticulture at Macdonald

study of the epidemiology and control of late yellow rust, a disease of red raspberry. In recent years this disease has become a problem in eastern Canada.

The field work part of the project was carried out in New Brunswick during the summers of 1986 and 1987. This work studied different timings of fungicide application for control of rust in order to determine an optimum spray schedule. Currently, work is being carried out in the phytotron at Macdonald College. Six red raspberry cultivars will be inoculated with urediniospores of late yellow rust in order to determine the susceptibility or resistance of these cultivars. For susceptible cultivars, the latent period, the infection efficiency, and the infectious period will be determined.

(16) STEPHEN K. KIMANI is from Kenya and is working on his MSc at Macdonald under the supervision of Dr. K. Stewart. He is here on a Kenya/Canada General Training Fund Program. Studies were carried out in 1986/87 to evaluate the effectiveness of a row cover "AGRONET" for increasing earliness in yield of snap beans *Phaseolus vulgaris* L. cv. Contender. There were three dates of planting. The row cover enhanced seedling emergence by three days for the first planting

date. Soil temperature differences were significantly higher (2 to 5°C) under row cover. The row cover resulted in greater and earlier yields, although its effectiveness declined at later planting dates.

(17) DANIELLE MATHIEU, BSc(Agr)'87, whose supervisor for her MSc program is Dr. A. Kushalappa, says her research constitutes the initial stage of a series of studies on the epidemiology of celery late blight caused by *Septoria apiicola* Speg. It focuses on the effects of varying conditions of moisture and temperature on the infection process. Various culture media are being investigated for their effects on fungal growth and sporulation to standardize inoculum production. Experiments are also planned to test cultivar responses.

(18) JOHANNE COUSINEAU, who has a BSc in Microbiology and Immunology from McGill and a MSc in Experimental Medicine, also from McGill, is now working towards her PhD with Dr. Danielle Donnelly.

The tissue culture of plants can lead to the appearance of genetic mutants (somaclonal variants) under certain conditions. In this project raspberry plantlets will be regenerated from undifferentiated callus tissue in an

attempt to obtain somaclonal variants. The techniques of isozyme analysis and karyotyping will be performed to detect differences between the regenerated plantlets and normal greenhouse grown controls. The plantlets will also be examined for their potential use in plant breeding.

SYLVIE JENNI (not in photo) was originally from Switzerland and completed her BSc at Macdonald in 1987. As an NSERC student, she has started worked on an MSc project dealing with floating row covers. These covers are used to protect crops from the harsh spring environmental conditions (cold and wind).

Little is known, however, about the duration of the covering period. Sylvie, working with lettuce and mini carrots, is trying to determine the optimal stage for cover removal based on plant development and critical temperatures. Her work is being carried out in conjunction with two commercial growers in the organic soil regions of Quebec and is under the supervision here at Macdonald of Dr. K. Stewart.

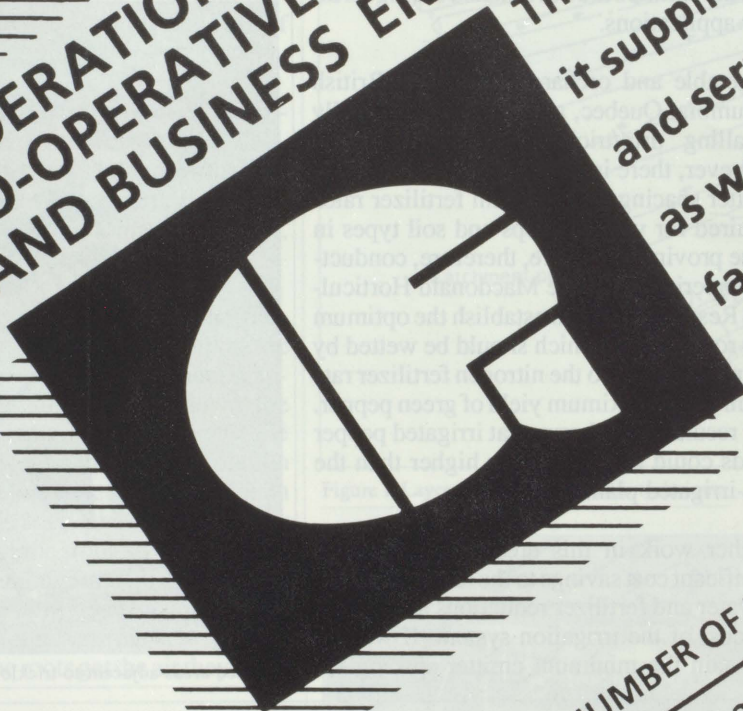
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# Trickle Irrigation of Vegetable and Orchard Crops

by Professor C.A. Madramootoo and Marion Rigby, Postgraduate student  
Department of Agricultural Engineering

Vegetable and orchard crops grown in eastern Canada and British Columbia require supplemental irrigation during the summer months to alleviate water stress. During periods when evapotranspiration is greater than rainfall, and the plant cannot extract sufficient moisture from the soil-water reservoir, irrigation water must be applied. This is especially critical for vegetables, which have a shallow rooting depth. One of the most efficient and economical methods of supplementing rainfall is by trickle irrigation. This technique of irrigation caught on rapidly in the late 1960s and early 1970s, especially in Israel, California, and Florida. Irrigation engineers and agronomists in these three regions were concerned about dwindling water supplies and the inefficiencies of other irrigation techniques, eg., surface and sprinkler. There was a need to apply small amounts of water continuously and directly in the plant root zone. This would eliminate the wastage of water due to drift, evaporation, and wetting of unnecessary areas.

A drip/trickle irrigation system consists of polyethylene laterals parallel to plant root rows with small drippers attached to the laterals. Water is emitted by the drippers at low pressure and flow rates in the form of continuous drips to the root zone of the plants. The laterals are connected by a polyethylene mainline to the water supply. The operating pressure of a trickle irrigation system varies from 69 to 138 kilo Pascals. The drippers, or emitters, discharge water at rates varying from two to four litres per hour. An added advantage of trickle irrigation is that fertilizer can be mixed in with the irrigation water and the nutrient solution applied via the emitter directly to the root zone. This results in a more efficient plant uptake of water and fertilizer.

Other advantages of trickle irrigation include better weed and pest control and less energy, labour, and maintenance costs compared to sprinkler irrigation. Trickle irrigation could also be used on sloping lands and minimizes soil erosion. One aspect of trickle irrigation that, however, requires attention is that of filtration. The outlet of an emitter could be as

small as a pinhead. Therefore, the water supply must be filtered to prevent blockage of the emitter flow path with sediment. Soluble fertilizers must also be used to ensure that the emitters are not blocked during fertilizer applications.

Vegetable and orchard growers in British Columbia, Quebec, and Ontario are rapidly installing drip/trickle irrigation systems. However, there is no design information on emitter spacing or maximum fertilizer rates required for various crops and soil types in these provinces. We are, therefore, conducting experiments at the Macdonald Horticulture Research Area, to establish the optimum soil-root volume which should be wetted by an emitter and also the nitrogen fertilizer rate required for maximum yield of green pepper. Our results have shown that irrigated pepper yields could be 2 1/2 times higher than the non-irrigated plants.

Further work in this area could result in significant cost savings to the farmer in terms of water and fertilizer reductions and also in the cost of the irrigation system. If we can ascertain the minimum emitter spacing re-

quired for maximum plant yield, then system costs can be significantly reduced because the emitters represent a substantial cost of the system components.



Wetted areas adjacent to trickle emitters.

## Biofungicides, Bioherbicides, and Postharvest Diseases

The development of biofungicides: This entails the discovery and utilization of microorganisms which inhabit plant surfaces and which antagonize plant pathogens (by secretion of antibiotic compounds or parasitism). We have demonstrated in the field that these microorganisms can reduce plant infection and increase yield. They can be applied to the plant surface where they grow and establish a barrier to infection by pathogens.

The development of bioherbicides: Fungi which attack weed plants may be cultured and sprayed onto weeds. Infection by these pathogens reduces the growth of the weeds, lessening their ability to compete with crop plants

which are not susceptible to infection by these particular pathogens.

Control of postharvest diseases: We are cooperating with G.S.V. Raghaven of the Department of Agricultural Engineering in studies aimed at both the utilization of modified atmospheres to control vegetable storage rots and the use of volatile detection as a means of determining levels of disease in storage. Plant pathogens release volatile compounds while growing and detection of these volatiles in storage areas can be used as an indicator of how much disease is present in the storehouse. This information could be used by growers to decide when to empty the storehouse.

Professor R. Reeleder  
Department of Plant Science



# Better Lettuce and Herbs with Hydroponics

by David Wees, BSc(Agr) '84, MSc(Agr) '87\*

For many years, growers and scientists have explored methods of growing plants without soil. These methods, collectively known as hydroponics, have many advantages over soil-based agriculture: fewer pests and diseases, higher yields and more efficient use of fertilizers.

One of the most successful forms of hydroponics is the nutrient film technique, or NFT. NFT was developed in England in the late 1960s. By the mid 1970s, many producers were using NFT to grow tomatoes, lettuce, and flowers.

The basic NFT system is simple. The producer grows plants in slightly sloped plastic troughs. A shallow stream of nutrient solution, the nutrient "film," flows down the troughs over the roots of the plants. At the lower end of the troughs, the nutrient solution drains into tubes and is returned to a main reservoir. The solution is then pumped back to the upper end of the troughs. The nutrient solution circulates continuously. Thus, water and minerals are always available to the plants. In addition, since the nutrient solution is very shallow, the roots get the air they need.

Many different nutrient solutions can be used. One gram of "Peters Hydrosol," a premixed commercial fertilizer, plus half a gram of calcium nitrate per litre of water gives lettuce all the minerals it needs in the right concentrations (Table 1). Some other crops also grow well in this nutrient solution, but tomatoes and cucumbers need more potassium.

Since 1982, horticulturists at Macdonald College have been studying NFT. We have dealt mainly with "Boston" lettuce, but herb production has also been explored. This article will present some of the progress made and also some of the problems encountered.

When plants get "cold feet," i.e., cold roots, they have trouble absorbing phosphorus and other minerals: this slows their growth. Plants grown in soil, even in a greenhouse, can get cold roots; indeed, the ground can get quite cold in the fall and winter. Lettuce

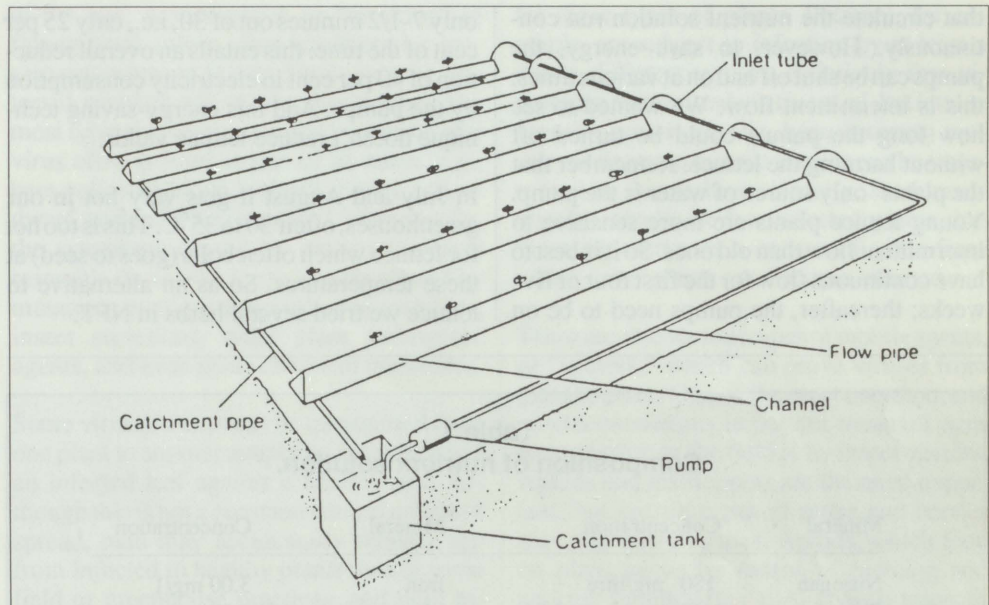


Figure 1. Layout of the nutrient film technique.



"Boston" lettuce grows very well in hydroponics. Suspended sodium lamps speed up growth.

grows much better when the nutrient solution is heated to 25° C. Therefore, solution heating can speed up winter lettuce production. Furthermore, solution heating is required for only the first four or five weeks after seeding.

Afterwards, a solution temperature of 15° C is sufficient.

Another technical advance in NFT is the use of "intermittent flow." Normally the pumps



that circulate the nutrient solution run continuously. However, to save energy, the pumps can be shut off and on at various times: this is intermittent flow. We wanted to see how long the pumps could be turned off without harming the lettuce. Remember that the plants' only source of water is the pump. Young lettuce plants are more sensitive to intermittent flow than old ones. So it is best to have continuous flow for the first four or five weeks; thereafter, the pumps need to be on

only 7-1/2 minutes out of 30, i.e., only 25 per cent of the time: this entails an overall reduction of 40 per cent in electricity consumption by the pumps. And this energy-saving technique doesn't reduce lettuce yields.

In July and August it gets very hot in our greenhouses, often 30 to 35°C. This is too hot for lettuce which often bolts (goes to seed) at these temperatures. So as an alternative to lettuce we tried several herbs in NFT.

Basil grew very quickly. The species requires lots of water and heat: these were supplied by the NFT system and the greenhouse. Peppermint also did quite well. Unfortunately, peppermint seeds are tiny and germinate poorly. It is therefore advisable to start with cuttings rather than with seeds.

Parsley seeds also germinate slowly so it is best to start with transplants. This herb has much potential in hydroponics, but it cannot stand hot weather; so it grows quite slowly in the greenhouse in the summer. It would be more appropriate as a fall or winter crop, as would watercress.

We have also tested oregano, thyme, sage, and summer savory. Oregano does pretty well. The others grow too slowly to be commercially interesting. However, home gardeners and chefs may want to grow these herbs on a small scale for personal consumption.

While NFT shows much promise, it also has problems. The main drawback is cost: an NFT system is expensive to build. Once built, though, the operating costs may be lower than those of a traditional greenhouse.

The grower must watch the nutrient solution very carefully, testing regularly for pH and electrical conductivity (a measure of mineral concentration). There is only a small error margin in NFT: one mistake could destroy a crop.

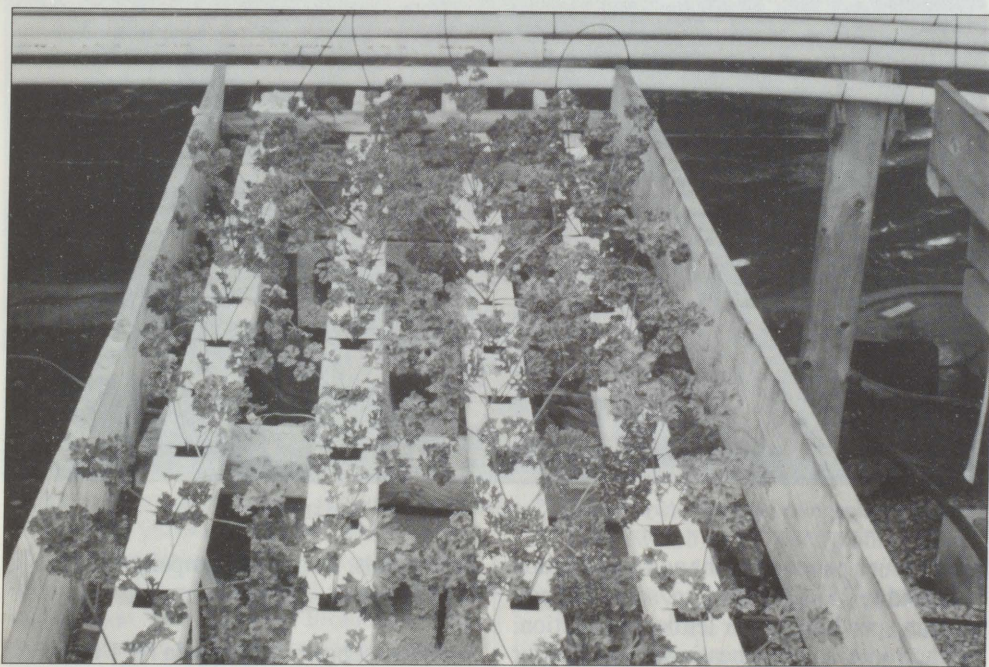
Fortunately, with modern electronic equipment, it is fairly easy to detect problems. Furthermore, computer-controlled pumps can add nutrients at the precise moment the plants need them.

The day is not far off when some crops will be raised almost entirely by machines and computers. But we will still need a competent grower to supervise the whole operation because computers don't have green thumbs.

\*See article on page 20 for news of David Wees and other recent graduates.

**Table 1**  
**Composition of nutrient solution.**

| Mineral    | Concentration | Mineral    | Concentration |
|------------|---------------|------------|---------------|
| Nitrogen   | 180 mg/litre  | Iron       | 3.00 mg/l     |
| Phosphorus | 48            | Manganese  | 0.50          |
| Potassium  | 210           | Boron      | 0.150         |
| Calcium    | 100           | Molybdenum | 0.100         |
| Magnesium  | 8             | Zinc       | 0.100         |
| Sulphate   | 117           | Copper     | 0.05          |
|            |               | Chloride   | 0.040         |



Curled parsley, flavourful and ready to be picked.



# Is there a virus in your vegetable garden?

by Professor Jean Peterson  
Department of Plant Science

Have you ever noticed, while working in your garden, mottling, streaking, or puckering of the leaves on some plants? It probably wouldn't occur to most of us, but these plants might have a virus. There are more than 300 viruses which infect plants, but, fortunately, cause no ill effects in man or animals. In plants, these viruses sometimes cause visible symptoms and usually cause reduced yield and quality.

Viruses are tiny disease-causing agents, too small to be seen with an ordinary light microscope, which multiply only within living cells. All viruses are parasitic in cells, and few living organisms are immune to viruses. Some viruses attack man and/or animals, causing such well-known diseases as influenza, polio, or rabies; others attack microorganisms such as bacteria; and still others attack plants.

Plant viruses have been studied since the turn of the century. One virus may infect several different kinds of plants, and the reverse is also true, in that one plant may be attacked by several different viruses. A "typical" plant virus particle consists mainly of a genetic code or message (either RNA or DNA) surrounded by a protein coat, and is usually either rod-shaped or polyhedral in form when examined in an electron microscope. Viral genetic messages resemble those of the cells which they infect, so that the latter are tricked into producing new viral materials instead of normal (i.e., cellular) constituents. The intimacy of this relationship makes it very difficult to rid the cell of virus without damaging the cell itself.

Sometimes the only symptom shown by a virus-infected plant is reduced growth and yield. One of the most frequent and more obvious indications of virus infection is the development of light green or yellow areas, on leaves, intermingled with areas of normal colour, giving an overall mosaic effect on broad leaf plants. Areas along leaf veins may be lighter or darker than normal. In plants with narrow, parallel veined leaves, the equivalent of mosaic is the production of stripes or streaks of tissue lighter than the rest

of the leaf. A variegation or "breaking" in flower petal colour often accompanies mosaic symptoms in leaves. Fruits may be distorted, mottled, and smaller than normal. The most typical symptom caused by a particular virus often is used as part of its name, e.g., beet yellows, potato leaf roll, barley yellow dwarf, and cucumber mosaic. Unfortunately, the symptoms caused by viruses in plants resemble those which can also be caused by mutations, nutrient deficiencies or toxicities, insect secretions, other plant pathogenic agents, and even some chemical herbicides.

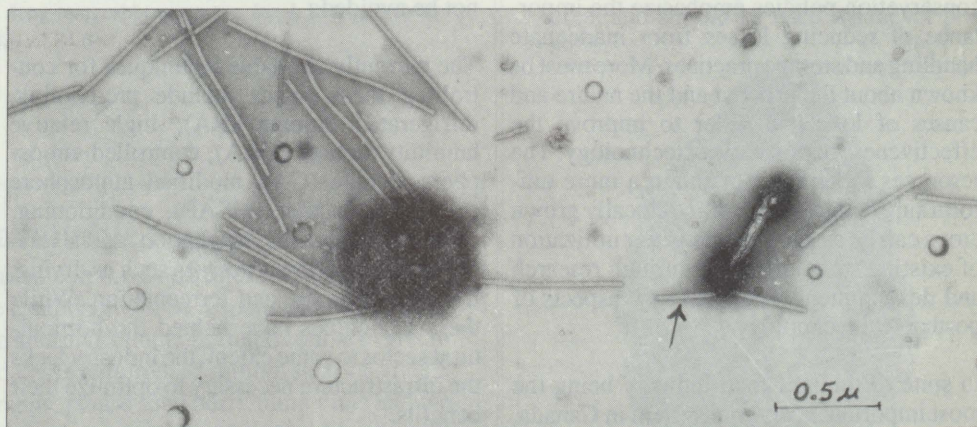
Some virus diseases can be transmitted from one plant to another simply by the rubbing of an infected leaf against a healthy one. Although this is not a common natural means of spread, man may accidentally transfer sap from infected to healthy plants during some field or greenhouse practices, and both tobacco and tomato mosaic viruses often are spread this way.

Many fruit and ornamental trees and shrubs, some field and garden crops, and many florists' crops are propagated vegetatively, i.e., by the use of tubers, bulbs, cuttings, or by budding and grafting. When this is done, any virus present in the "mother plant" from which such parts are taken will almost always be transmitted to the progeny, and this method of virus dissemination is important

for these types of plants. Potatoes, for example, are subject to infection by at least a dozen different viruses. Relatively few viruses are transmitted via true seed, but lettuce mosaic, squash mosaic, bean common mosaic, and tomato mosaic viruses can be transmitted in this fashion. Usually, seed transmission results in few infected plants, but these can serve as a source of virus from which other plants can become infected.

There are also various types of mobile agents, or "vectors," which can move viruses from plant to plant. One of the most common, and most economically important, means of virus transmission in the field is by insect vectors. Aphids and leafhoppers are the most important, but certain types of mites and beetles may also carry viruses. Aphids, which feed on plant juices by means of piercing and sucking mouthparts called stylets, transmit many viruses infecting vegetables, including turnip mosaic virus, bean yellow mosaic virus, and several potato viruses. Many viruses are transmitted by more than one kind of aphid; cucumber mosaic virus is an extreme example in that it can be moved by more than 60 aphid species, to a wide range of plants, including cucumbers, tomatoes, peppers, and many annual and perennial weeds. Among aphids, the least discriminating is *Myzus pers*

*Continued on page 17*

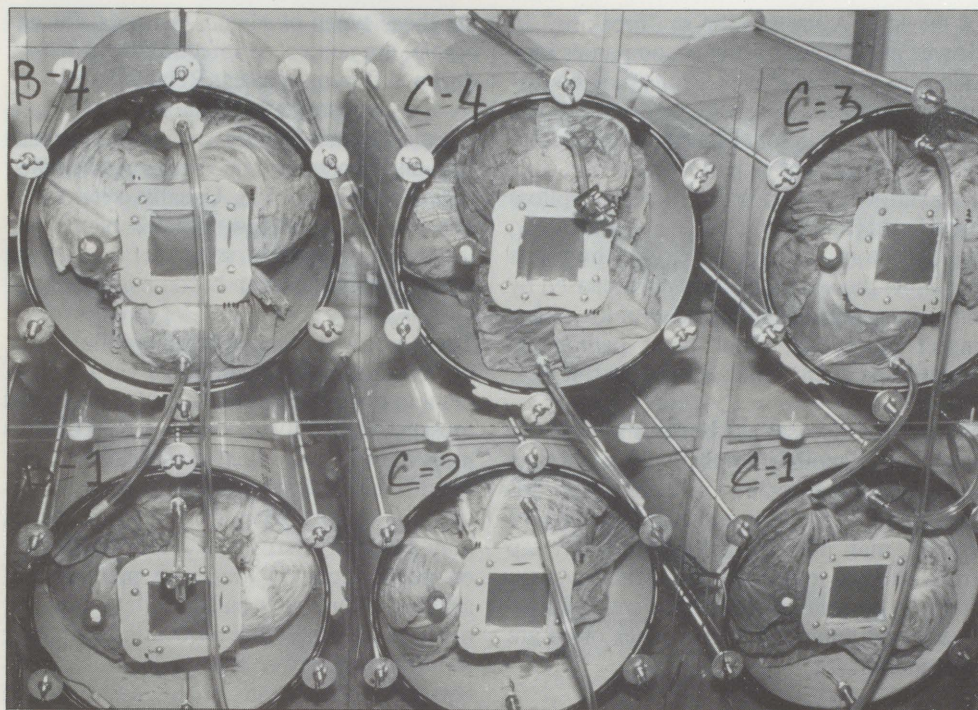


Electron micrograph of tobacco mosaic virus particles. Magnification scale marker represents 0.5 micrometers. Normal length particles (arrow) average 0.3 micrometers, or 300 nanometers, in length. Since one micrometer equals 1/1000 millimeter, it would take 3330 normal particles placed end-to-end to equal the diameter of a 1 millimeter pinhead. The longer particles are end to end aggregates.



# Postharvest Technology

by Professor G.S.V. Raghavan  
Department of Agricultural Engineering



Experimental chambers equipped with the silicone membrane window. These chambers are used for controlled atmosphere storage study on vegetables.

The increased attention given to postharvest technology of fruits and vegetables emerges from the need to supply consumers with fresh produce of quality at an affordable price. The ever-increasing cost of production and land conservation policies emphasize the importance of reducing losses from inadequate handling and storage practices. More must be known about the product and the nature and causes of losses in order to improve the effectiveness of postharvest technology. The resources required to maintain a more uniform supply and production of locally grown crops can be assured by the better utilization of existing techniques and through research and development (R&D) in new aspects of postharvest technology.

In spite of the agri-food industry being the most important economic system in Canada, it still needs to overcome a variety of problems. The horticultural sector is a subset of this industry. The products produced undergo a series of physiological and biochemi-

cal changes during their postharvest period. Harvesting, storage, transportation, and distribution are the major areas where postharvest losses due to aging, pathogenic activities, texture, and nutritional degradation can not be avoided.

The currently available techniques for controlling these losses include pre-cooling, refrigerated storage (RA), high relative humidity storage (HRA), controlled atmosphere storage (CA), modified atmosphere storage packaging (MSAP), conditioning, chemical treatments, irradiation, and a variety of preservation processes such as drying, freezing, canning, and fermentation. While these techniques have helped the horticultural sector to some extent, the industry lacks the infrastructure necessary to optimize their benefits.

Many of these techniques have been utilized successfully in some countries; however, their suitability under our climatic conditions

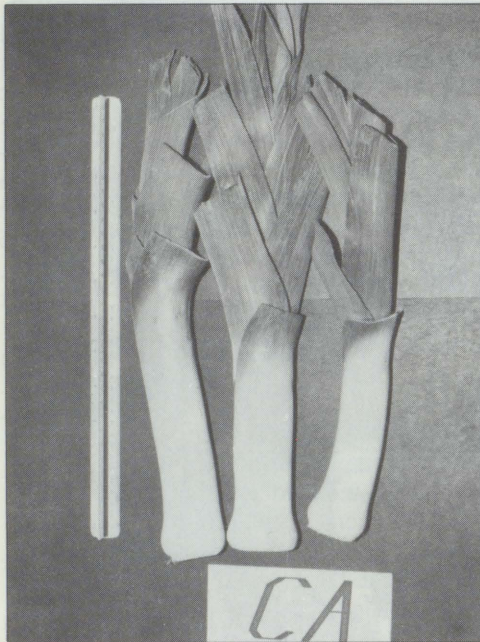
and socio-economic context is yet to be demonstrated. There exists a high potential for increasing the production and reducing imports of many fruits and vegetables which are grown under Canadian weather conditions. For example, the availability of domestically produced cabbage on the Canadian market is poor five months after harvest. The market depends on imports for more than 35 per cent of its annual supply (Longmuir, 1984). Commercial trials demonstrated that cabbage can be successfully stored under controlled atmosphere (CA) till June with less than 17 per cent losses (Raghavan et al. 1984). With proper management and marketing strategies, year around supply of the market by domestically produced cabbage is therefore feasible.

In the area of fruit and vegetable storage, little has been done to provide the storage management with monitoring tools that could detect abnormal stresses in the crop before important losses occur. Monitoring of metabolic volatiles produced by the stored crop as well as some physiological parameters such as respiration rate, sugar content and water content, could prove to be very useful to storage managers to forecast storability. These techniques are promising, but research is required before they can be implemented in commercial storage facilities.

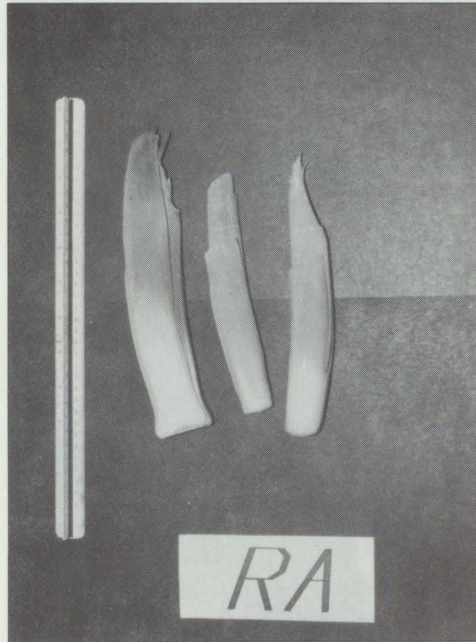
There is a demand for increasing the production and diversity of agricultural crops. Improved management strategies, refinements of existing techniques, and R&D in postharvest technology should provide the resources required to reduce postharvest losses and to maintain a more uniform supply and production of locally grown fruits and vegetables.

At Macdonald College efforts have been directed towards: i) The development of CA storage systems for long-term storage of Canadian-grown fruits and vegetables; ii) The measurements of their physiological and mechanical properties; iii) The standardization of quality assessment; iv) The development of automatic monitoring and control systems for storage environment; v) The selection and development of proper instru-





Leeks after 150 days of storage at 1°C under controlled atmosphere.



Leeks after 150 days of storage at 1°C under normal air composition.

ments and controlled atmosphere regulating equipment for long-term storage buildings; vi) The study and development of new packaging materials and methods; and vii) The identification and chemical and biological control of pathogens responsible for severe losses during storage. Storage research has yielded valuable recommendations for the agri-food industry with respect to short and long term storage and handling of domestically grown and imported commodities.

### References

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- Raghaven, G.S.V., Y. Garipey, R. Theriault, C.T. Phan and A. Lanson. 1984. System for controlled atmosphere long-term cabbage storage. *Int. J. Refrig.* 7(1):66-71.

### Position available

A full time Faculty Lecturer position is available in the Department of Plant Science. Minimum academic requirement B.Sc. The candidate will be responsible for teaching 4 diploma courses in the botany/horticulture area and 1 undergraduate course in greenhouses. Supervision of diploma stage candidates is required. Minimum salary \$27,115. Starting date August 1, 1988. Interested persons, please send curriculum vitae and the names of 3 referees to **Dr. K. A. Stewart, Department of Plant Science, Macdonald College of McGill University, 21,111 Lakeshore Road, Ste. Anne de Bellevue, Que., H9X 1C0** by March 15, 1988.

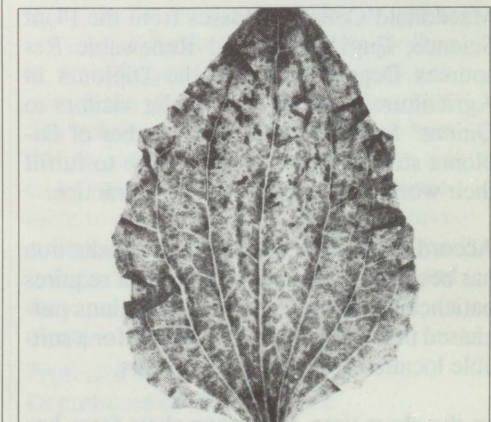
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*sicae*, the green peach aphid, which can carry at least 55 viruses. Not all vectors are aerial, as both nematodes and certain lower fungi can transmit viruses through the soil. What is common to all vectors is the penetration of, and acquisition of, virus from infected plants and subsequent inoculation of healthy plants.

Once a plant is infected, it generally remains so for life and can serve as a source of virus which vectors may transmit to other plants. Chemicals which can eliminate virus from infected plants have not yet been found. Thus plant virus diseases are avoided mostly by prevention rather than cure.

The following steps should be useful in keeping viruses out of your garden:

1. Use only "indexed" or certified virus-free seed, tubers, bud wood or rootstocks.
2. Keep perennial weeds under control, and remove infected plants, to eliminate possible virus sources.
3. Keep insect populations under control.
4. Study the small print in the seed catalogues, as various resistant or "tolerant" varieties of many vegetables are available, and should be used whenever possible.



Broad-leaved plantain showing vein-clearing and mottle symptoms typical of virus infection.



# Profile: Marie Quinn Finds U-Pick Business Rewarding

by Gerald Chevrier  
Department of Plant Science

Long after the last apple has been picked and the ground is covered with snow, it is gratifying to sit back and reflect on the events of the previous growing season. Gratifying, indeed, if there is time. Winter appears to be the ideal resting period for those involved in fruit and vegetable production, but it is also the time to plan for the coming year's events. Plant materials are ordered, production and marketing strategies are considered, and corners are cut in efforts to improve production efficiency. One person faced with these decisions is Macdonald graduate, Marie Gourley Quinn.

Marie and her husband, Elwood Quinn, live on the 50 hectare fruit and vegetable farm on Ile Perrot which they have been working since 1982. Marie, a mother of two young boys Phillipe, 7, and Matthew, 5, has acquired her farming skills by trial and error over the past few years. Born and raised in Montreal, Marie registered in the Department of Plant Science at Macdonald College in 1976 and received her B.Sc. (Agr.) in Horticulture in 1979. Since leaving Macdonald, she has been very active in Quebec horticulture as a producer, a member of l'Ordre des Agronomes, and as the regional representative for the strawberry growers of St-Jean-Valleyfield region. Marie is also in charge of strawberry promotion in Quebec.

She has also remained in contact with Macdonald College. Classes from the Plant Science, Engineering and Renewable Resources Departments and the Diploma in Agriculture Program are regular visitors to Quinns' farm. In addition a number of Diploma students have worked there to fulfill their work requirement for Farm Practice.

According to Marie, horticultural production has been a rewarding challenge that requires patience and perseverance. The Quinns purchased their property after looking for a suitable location for close to two years.

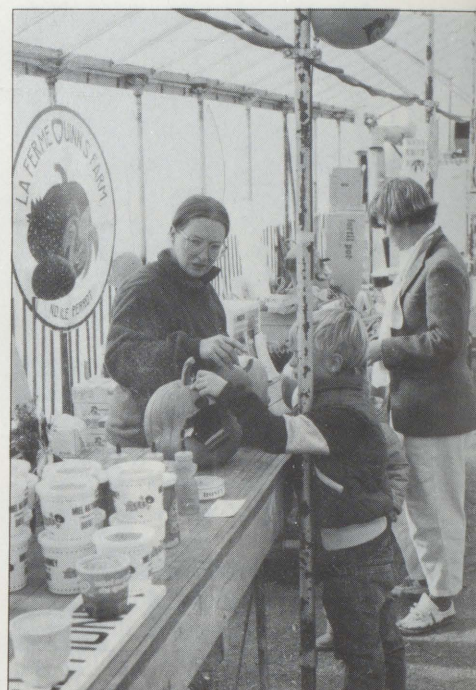
In the short time since then their farm has evolved into a very popular operation, with a thriving "U-pick" business and trade from



Marie Quinn oversees the marketing of produce that is sold in the store on the farm. Customers have the option of buying either fresh produce at competitive prices or picking their own.

tours of school and pre-school groups. A large greenhouse shelter near an ample parking area is set up for sale of their own produce along with honey from their 18 bee colonies. The shelter is very well equipped with a sandpile for visiting children, tables to serve refreshments, and home-baked goods. Outside, tractors and wagons are ready to take groups to the fields.

Their location on Ile Perrot is close to the suburbs and city of Montreal, making it an ideal place for people who want to pick their own produce. Marie has found that while many people have a basic knowledge of picking fruits and vegetables, most will have to be shown where and how to pick on their first visit. This is where the virtue of patience has come into play since plants are often damaged and fruit left unpicked by less conscientious pickers.



In addition to fresh fruit and vegetables the store at Quinn's farm is also well stocked with three kinds of honey as well as an assortment of home baked goods and refreshments.

Initially, the Quinns experienced a high percentage of losses in the field because of a lack of people to pick the crop. Today Marie estimates that 7 to 10 percent of their gross income must be spent on advertising to draw the public to a U-pick operation. Word of mouth does help but it cannot be relied on as the only method of advertising. Through their willingness to be interviewed, the Quinns' operation has also received exposure through various Montreal media sources including CBC and CJAD radio and the Gazette.

Marie and Elwood came upon the idea of conducting tours of their farm while attending Ontario marketing meetings. During the past three years they have hosted dozens of groups of school children in the fall for hay rides out to the fields to select the perfect pumpkin for Halloween or making pumpkin



pie. In addition to being an exciting outing, Marie sees this as an opportunity for urban and suburban children to see where their food comes from and how it is grown. Their tours have been quite successful and are now conducted during the summer for many day care centres in the Montreal region. During the peak season, advanced bookings must be made to accommodate the number of groups that call to arrange tours. Although such tours appear to be an attractive sideline, the Quinns caution that every effort must be made to ensure the safety of visitors and their supervisors.

The Quinns started their first growing season with a modest one hectare of strawberries, some sweet corn, and raspberries. By the next year they had significantly increased their area in strawberries to 10 hectares. Today their operation comprises 10 hectares of strawberries (including seven main varieties), two hectares of raspberries, four hectares of apples (nine different varieties on semi-dwarf and dwarf rootstocks), sweet corn (mostly super sweet varieties), high bush blueberries, currants, and assorted vegetables.

The key to the success of any horticultural enterprise lies in a producer's readiness to keep up to date with the newest growing techniques and a willingness to meet customer demand for quality and a variety of different crops. In addition to subscribing to numerous trade journals, the Quinns attend a number of conferences during the winter season including the North American Dwarf Tree conference, the North American Strawberry Growers conference, and the Quebec Blueberry Association meetings.

According to Marie, customer inquiries for apples influenced their decision to establish their four hectare orchard. Similarly, if popular demand for U-pick cut flowers increases, then their small scale statice and gladiolis plantings may be expanded. Although raspberry sales have been good over the past few years, Marie and Elwood would like to concentrate their future plantings on purple va-

rieties instead of red. Their purple raspberry harvests have been consistently higher than the red. In addition berry quality and size have been superior with the purple varieties.

Marie says that many crops have potential for U-pick. In fact, during the course of this interview, a customer telephoned to inquire about selecting and cutting his own Christmas tree. There is, however, a limit to which a producer will go to capture a certain market.

When asked if her present lifestyle has any drawbacks, Marie's major concern was the lack of time that she and Elwood can spend with their children for vacations or recreation away from the farm. They always hope for a few days break between the strawberry and

raspberry season, but there is usually something needing immediate attention. The Quinns are prepared to put in long hours; weekends and holidays are usually the periods with the heaviest customer traffic (in the store and in the fields) in a U-pick operation. On most days of the week, closing time is when the last customer leaves the store.

With winter coming to an end in a few short weeks, the cycle will soon start over. There are still many things to do before then. Apple trees are pruned, honey is extracted, raspberry canes are untied and vegetable seedlings are started in the greenhouse in anticipation of a successful and prosperous growing season.

### The Plant Tissue Culture Facility

The Tissue Culture Facility currently services the needs of four faculty members (Drs. Donnelly, Grant, Coulman and Watson), and their graduate students. Projects underway in the Plant Tissue Culture Facility involve many crop species: raspberry, strawberry, apple, rose, potato, tomato, eggplant and yam. Forage species and even some weed species are being worked on in culture. Most projects involve tissue culture propagation for examination of anatomical, physiological, or genetic factors.

The goal of my research program is to develop rapid and objective procedures to monitor performance and optimize growing conditions for tissue cultured (micro-propagated) plantlets and *ex vitro* transplants of red raspberry and strawberry. In order to do this I examine the anatomy and physiology of tissue cultured plantlets, recent transplants from culture and greenhouse-grown plants. Plants grown in culture look quite different from greenhouse-grown plants and behave quite differently, due to the unique environment in which they grow. These are phenotypic, not

genotypic changes. Phenotypic clues are what I use to assess performance and improve growing conditions for cultured plantlets and *ex vitro* transplants. Plantlets transferred from culture to soil develop a range of transitional leaf types with intermediate physiology, before leaves similar to greenhouse-grown plant leaves are formed. So, on the same transplant I can see a range of leaf morphs: culture type at the bottom, intermediate types and, finally, control-type at the apex.

I believe that this type of experimentation, using a tissue-culture model system, is useful in furthering our understanding of the effects of environment on plants, reveals the plasticity of plant phenotypes, and helps us to understand what occurs during acclimatization when plants are transferred abruptly from one environment to another. The tissue culture environment provides potentially huge populations of plants for experimentation and these are all genetically identical (a clone) so interpretation is simplified.

Professor Danielle Donnelly  
Department of Plant Science



# At Macdonald or as a Career: the Horticultural Route:

by Gerald Chevrier  
Department of Plant Science

While studying at Macdonald those Diploma, Degree, and Postgraduate students who concentrated on Horticulture might well be expected to take that same route when they join the work force. Some do; others choose careers in totally different fields. As well, those who concentrated on other options while at Macdonald may now find themselves involved with Horticulture. In industry, in government, or working for themselves, some of our recent graduates tell us about their careers to date. It sounds as if they have chosen the right route!

**SAMUEL ASIEDU**, BSc(Agr) '76, MSc(Agr) '78, PhD '85, specialized in Plant Pathology while at Macdonald but, upon completing his PhD, he was pleased to accept the position of Potato Extension Specialist with the Plant Industry Services Branch of the P.E.I. Department of Agriculture.

**KEITH CUMMINGS**, Dip '81, spent a year as a grower/manager for Cory Mushrooms in Vankleek Hill, Ontario, after he left Macdonald. He next worked in the ornamental horticulture sector for three years gaining experience at Crammer Nursery, with Macdonald College Campus Care, and as a self-employed landscapist.

Keith is currently employed as a horticultural crop specialist in the Rehabilitation Department of the Douglas Hospital in Verdun. One half of his work is devoted to outdoor vegetable production, the other half is devoted to greenhouse production of hydroponic lettuce and several floricultural crops including poinsettia, pot carnations, and bedding plants.

**ANDREAS GRUENEBERG**, Dip 81, BSc(Agr) '83, took the Horticulture option here at Macdonald and now, in Leduc, Alberta, finds himself in a totally different sphere and is enjoying it immensely. After graduating he took a year for travelling before joining Monsanto Canada in Montreal in 1984. He went to London, Ontario, for an 11-

month training period in sales of agricultural chemicals and was then transferred to Edmonton.

"I joined Cunningham Fertilizers in Leduc in November 1986 and am working here as Sales Manager and Professional Agrologist. We are in touch with all facets of agriculture and deal directly with the farmers in the area." Andreas said that 70 per cent of farming in the area is devoted to barley. Wheat, canola, and forages make up the balance. He is enthusiastic about his future with Cunningham and strongly recommends sales to any graduate about to enter the work force.

**ROBIN COTE**, BSc(Agr) '82, also went to Europe after graduating. "I was there for three months and worked in nursery and apple production. During this time I received instruction in the Lespinase system of apple tree training."

When he returned to Quebec, Robin worked for Chemlawm for two years, specializing in tree and shrub maintenance. For the past three years he has been working for Pfizer Canada Inc in their Agricultural Division. "I started as the eastern Quebec sales representative working with potato, Christmas tree, corn, and fruit producers and am now the Marketing Manager for eastern Canada."

**LUCE DAIGNEAULT** BSc(Agr) '82, MSc(Agr) '85, worked for Ball Superior in Mississauga, Ontario, for a year and a half. "I was Plant Department Manager and my duties included purchasing, product marketing, and personnel training."

Luce next spent one year with Botanix in Montreal as a buyer for live plant materials and was also involved in programs for nursery production and distribution methods.

"I am now Manager of planning and production cycles and am in charge of purchasing and marketing for nursery production for Les Pépinières Auclair et Frères near Montreal."

**PAUL JENSEN**, BSc(Agr) '82, MSc(Agr) '85, went to work for B-E de Lier (Bleiswijk,

Holland) on a self study and work program after he completed his MSc studies in Horticulture. "This permitted me to work in close contact with growers, the industry, and researchers in most areas of greenhouse culture," Paul told us. "And", he continued, "I was involved in the construction and installation of Venlo glasshouses, water reservoirs, pump units, climate computers, and specialized in hydroponic rockwool systems which included working in all aspects of cucumber, pepper, and tomato culture in rockwool."

Paul next went to Ball Superior Ltd., in Mississauga, Ontario, and was responsible for the management of Customer Service and product management of Ball Pan Am products (chrysanthemums, gerbera, poinsettia, violets, kalanchoe, and hibiscus).

Paul has just recently joined Les Vivaces Québécoises Inc., in Blainville, Quebec, as Production Manager. "Our production is 100 per cent containerized, and we are producing over 400 varieties of perennials for a total production of over one million plants per annum. Our facilities include 7,800 m<sup>2</sup> (85,000 ft<sup>2</sup>) of greenhouses and approximately two hectares of outdoor production.

**DAVID WEES**, BSc(Agr) '84, MSc(Agr) '87, whose article appears elsewhere in this issue, has been involved as a 'consulting-agronome' in an interesting variety of work since completing his MSc last February. "I am working part-time with Professor Donnelly in the Department of Plant Science testing a synthetic foam to be used as a component of potting mixes. I am also working as a consultant for a greenhouse tomato grower in Mont St-Hilaire and testing a wood residue to be used as a potting mix for another firm. As this article was going to press, David was hoping to work this coming spring as a consultant for a perennial flower grower in Ste-Madeleine.

**MICHEL LESAGE**, BSc(Agr) '86, said that since he graduated he has found that the "job market is characterized by change." He has

*Continued on page 39*



# Issues in Human Nutrition

## What's the BMI and how does it relate to IBW?



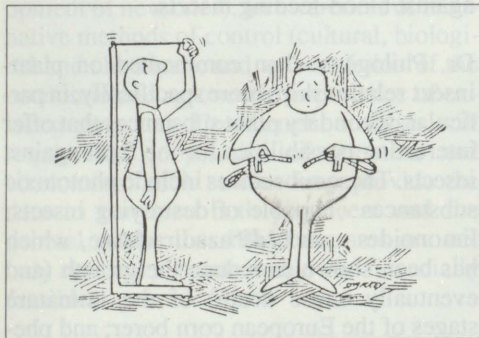
by Linda Jacobs Currie, University Coordinator  
Professional Practice (Stage) in Dietetics, School of Dietetics and Human Nutrition

*When would you say a person is overweight? Obese? Where is the fine line between slim and*

*thin? What is your ideal body weight (IBW)?*

It's a new year. The holiday festivities are a fond memory and you've gained a pound or two. Now you think you may be overweight or maybe just plump. Look again?

Weight is a North American obsession. Canadians spend millions of dollars on reducing aids, diet clinics, and diet books. Will 1988 be an exception? Many Canadians who believe they are overweight are not. This obsession with a slim body image has led to a rise in eating disorders such as anorexia nervosa and bulimia, reviewed in the August 1987 issue of the Journal. On the other hand, it is apparent that many Canadians suffer from weight related conditions such as hypertension, cardiovascular disease, and diabetes mellitus. So it is no surprise that our personal pounds or kilograms are still a "weighty" issue in 1988. How do you know what weight is right for you?



Healthy weights for all Canadians have gained momentum as a priority issue of Health and Welfare Canada, and this healthy weight concept requires an understanding of, and public and professional tolerance for, a variety of body shapes and sizes. The thrust is to take the focus from a preoccupation with weight alone. How? A measuring technique called the **Body Mass Index (BMI)** is now

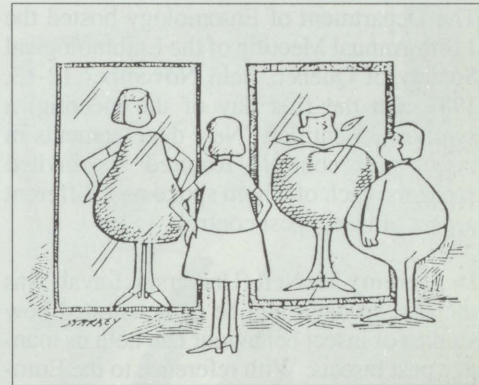
recommended as the most appropriate technique for determining if you are at a healthy body weight<sup>1</sup>. It is easy to do and highly reliable for the 20-50 age group, for both men and women.

$$\text{BMI} = \frac{\text{weight in kilograms}}{(\text{Height in metres})^2}$$

So, if you weigh 70 kilograms (154 pounds) and are 1.78 metres (5'10") tall, your BMI is  $22 \text{ kg/m}^2$  ( $70/[1.78]^2$ ). Your height will not likely change, so the question is - is this a healthy weight?

We know that people at extremes of both over - and underweight are at a higher risk for conditions such as hypertension, blood lipid changes, and diabetes, and it has been reported that breast, prostate and colon cancer show a strong association with excess weight. BMI values of 20-25  $\text{kg/m}^2$  represent a range associated with least risk for most people. Values over and below may be associated with increasing health risk<sup>1</sup>.

The greatest value of BMI as a healthy weight index is that it promotes a consideration of body weight or mass relative to height. It helps practitioners avoid subjective and value-laden terms such as ideal, desirable, or acceptable body weight, and non-specific words like overweight, obese, rotund, or slim, thin, and lean. Now we can talk about promotion of health without being caught up with only weight<sup>2</sup>. To go one step further: By also considering waist hip (W/H) ratio (waist circumference divided by hip circumference) a further indicator of healthy weight distribution is obtained. Dr. Marliss, Director of the McGill Nutrition and Food Science Centre, recently wrote that the apple shape (android) confers increased risk compared to the pear shape (gynoid)<sup>1</sup>. Which are you? Waist-hip ratios above 1.0 in males and 0.8 in females may be associated with risk of cardiovascular disorders and high blood pressure. So you see that both W/H ratio and BMI are important in determining some aspects of the health/weight relationship.



As you contemplate your new or prospective life membership to both your local diet clinic and fitness centre (sure exercise is important!), look again: you may be at a healthy weight. Remember, healthy food choices are far more important than slimness. We need to become more positive about our own body image - focus on acceptance of various shapes and sizes.

Having completed your measure, what's your health? If weight loss is indicated, follow a recommended health program including positive self image, regular physical activity, and healthy eating habits. It is a habit appropriate for everyday life and a treatment appropriate for health change when justified<sup>3</sup>. Consult qualified professionals!

Look for BMI stations and more information on "Healthy Weights in '88", in March, Nutrition Month, brought to you by the Canadian Dietetic Association and the dietitians of your province.

### References

- <sup>1</sup> Marliss, E.B. 1987. Current concepts concerning corpulence. NIN Rapport 2(2):1.
- <sup>2</sup> Canadian Dietetic Association, The. 1987. A Healthy Weight in '88. A resource manual for health professionals. CDA, Toronto.
- <sup>3</sup> Health and Welfare Canada. 1986. Achieving Health For All: A Framework for Health Promotion. HWC, Ottawa.



# Notable Events

## New Developments in Insect Pest Control

by Professor D. J. Lewis  
Department of Entomology

The Department of Entomology hosted the 114th Annual Meeting of the Entomological Society of Quebec, held November 12-13, 1987. On the first day of the meeting, a symposium entitled "New developments in insect pest control" featured six invited speakers, each of whom spoke on a different aspect of insect pest control.

**Dr. Jeremy McNeil** (Université Laval) was the first speaker, and he demonstrated how studies of insect behaviour can help us manage pest insects. With reference to the European skipper butterfly, he reported that while monitoring the skipper's annual increase throughout its range, it was noticed that the dispersal distance varied considerably from one region of the province to another. For example, the population in the region of Lac St. Jean spread much more rapidly than the one in the Matapédia Valley. Research on adult foraging behaviour in plots on the east and west side of a building offered an explanation for this phenomenon. In the morning adults actively fed on flowers in the sunny east plot, but rarely entered the shaded west plot. In the afternoon the trend was reversed. It was also observed that adults on the wing very quickly changed direction when they entered a shaded area, moving back into the light. This avoidance of shade slows the spread of the population in areas like the Matapédia Valley, where fields are often separated by wooded areas. Here the butterflies turned back into the field as soon as they entered the shaded zone at the edge of the forest. Similarly, movement was most rapid along open areas such as roadways and railway lines.

Dr. McNeil then reported on investigations with the alfalfa blotch leafminer. The sex ratio of this insect, estimated from adult emergence of field-collected pupae, was roughly 1:1. When the same parameter was estimated from adults collected in sweep nets, however, there was a definitive female bias, going as high as 75:1. A study of the activity patterns of males and females from sunrise to sunset clearly demonstrated that although females remain active on the alfalfa plants throughout the day, males were pres-

ent and mating occurred only in the early morning and late afternoon. Laboratory studies had shown that females were receptive throughout the day, thus eliminating the possibility that males were present only when females were willing to mate. Females are considerably larger than males and they feed on alfalfa sap by piercing holes in the leaflets with their ovipositors. Males obviously cannot do this and are dependent on water droplets (e.g., dew) present on the plant. Thus males, having a much larger surface to volume ratio than females and with no way of replacing body water lost during the day, are more susceptible to desiccation. Analyses of male densities in relation to microclimatic conditions (wind speed, light intensity, temperature, relative humidity) showed that males exhibited behaviour that reduced hygrothermal stress, moving down into the ground cover as the temperature increased and the relative humidity decreased, and returning as the conditions reversed at the end of the day. Thus, an understanding of differences in the behaviour of the two sexes helped explain field observations of anomalous female-biased sex ratio.

By referring to studies with other insects, Dr. McNeil indicated that although standard insect sampling techniques may provide us with useful qualitative and quantitative data, the significance of the data may be masked by our lack of understanding of an insect's behaviour.

**Dr. Bernard Philogène** (Université d'Ottawa), a Macdonald graduate, MSc (Agr)'66, spoke about physiological approaches and developments in the control of insects.

Dr. Philogène stated that the role of physiology in insect control has long been underestimated. The development of insecticides, for example, is impossible without fundamental data obtained by physiologists. There has been, over the years, progress in the physiological dimension of insect control; there have been discoveries and identities of pheromones, hormones, anti-hormones, feeding deterrents, phagostimulants and

phototoxic substances - all of which permit us to envisage new approaches to control plant and animal pests and vectors of disease.

While referring to the work of other physiologists, Dr. Philogène indicated how physiological research has practical implications. For example, an understanding of insect blood composition and regulation will not only permit us to learn how insects function, but will also permit us to increase our capacity to control them. Knowledge of insect nutrition, particularly for rearing large numbers of insects, has implications for biological control. Knowledge of the physical, chemical and biological characteristics of the insect exoskeleton and the nervous system is essential to understand how insecticides affect insects. Insects have tremendous reproductive potential; physiological studies of insect reproduction may permit us to reduce that potential, and subsequently insect populations. Studies of intermediate metabolism permit us to define the differences that exist between insects and other organisms with which they are associated; such studies have implications for the selection of plants that may be resistant or tolerant to insect attack, and the development of medications that might protect humans and other animals against blood-feeding insects.

Dr. Philogène then commented on plant-insect relationships more specifically; in particular, secondary plant substances that offer interesting possibilities for the fight against insects. These substances include phototoxic substances - capable of destroying insects; limonoides - such as azadirachtine, which has been shown to reduce the growth (and eventually cause death) of the immature stages of the European corn borer; and phenolic substances - found, for example, in the seeds of crops such as corn that play an important role in the fight against insects which normally attack such seeds.

**Dr. Guy Boivin** (Agriculture Canada, St-Jean-sur-Richelieu), also a graduate of Macdonald College (Ph.D. 1981), spoke on the topic of integrated control of insect pests in Quebec - the present situation and future



needs. The implementation of Insect Pest Management (IPM) is strongly ecological in approach, and draws on a great variety of control methods to develop a system of techniques that are mutually reinforcing in specific situations. In general, the aims of IPM are to understand thoroughly the interactions of organisms and their environment, to determine the level of economic injury that will necessitate control procedures, and to develop a program of control that will have as little impact as possible on non-target species, the environment, and beneficial processes and relationships.

Dr. Boivin indicated that several IPM programs have been created recently in Quebec; chiefly, these programs have focused on the monitoring of pests in different crops (e.g., carrots, potatoes, apples, onions, celery and cabbage). These programs also vary in importance, methods of study and status.

In recent years the prerequisites for the establishment of IPM programs have become better defined; clearly, these must include the needs, interests and expectations of producers and scientists. Future endeavours in this field of study must include a review of existing methods of study (and perhaps the development of new ones), an awareness of alternative methods of control (cultural, biological and chemical), and an evaluation of the economic and agronomic importance of existing programs. Cost-benefit analyses will require the cooperation of scientists and economists; such studies may provide the data to convince both producers and the general public that IPM programs are not only necessary, but desirable and financially feasible.

**Dr. Daniel Coderre** (Université du Québec à Montréal) spoke on the subject of ecology and control of insects and indicated that the use of ecological concepts for the control of insects provides an interesting and alternative approach to insect control, such as the integration of biological control and crop diversification.



Emeritus Professor D. Keith McE. Kevan, r, receiving a plaque commemorating his honorary membership in the Entomological Society of Quebec from Professor Jack McFarlane, Chairman of the Department of Entomology, at a reception held in the Faculty Lounge.



Also awarded an honorary membership, Emeritus Curator Vern Vickery, Lyman Entomological Museum and Research Laboratory, with two former students, Dr. Robert Trotter, MSc(Agr) '66, l, Agriculture Canada, and Dr. Michel O. Guibord, MSc(Agr) '69, r, Quebec Ministry of Agriculture, Fisheries and Food (MAPAQ).



Until recently, the dogma of biological control has been based on the superiority of specialized predators, often neglecting other ecological and behavioural factors such as functional response, competition and habitat. In ecosystems with high plant diversity, spatial uncertainty of resources becomes a problem for specialized plant-feeders, leading to a reduction in the variability of their abundance. This situation favours specialized predators. On the other hand, generalist plant feeders are more tolerant of unstable or more diverse ecosystems.

Consequently, two options are available to researchers hoping to increase the impact of natural enemies on insect pest populations. Firstly, to increase plant diversity (polycultures); this will assume a greater certainty of resources for predators and parasites that have a narrow "host-preference" (e.g., lady beetles). Secondly, to favour predators and parasites which have a broad "host-preference" (e.g., spiders and ground beetles); these will be much more tolerant to fluctuations in pest insect populations.

Dr. Coderre concluded by indicating that theoretical studies on this wave length must continue, and that the time is right to conduct a pilot project to verify hypotheses that have arisen to date, and to evaluate the costs and benefits of such control strategies.

**Mr. Glenn Letendre** (Chipman Inc., Longueuil), another Macdonald graduate (BSc(Agr)'77, MSc(Agr)'82), was the first of two industry representatives invited to participate in the symposium. Mr. Letendre spoke about Karate® - its fate and effect in the environment.

Karate® is a new pyrethroid insecticide. It has a greater range of activity than currently available pyrethroids, and at very low rates of application. Field testing has been under way in Canada since 1983. It is highly active against a wide range of foliar and soil surface pests. Karate® is suitable for both curative or preventive use, providing both rapid knock-down and persistent protection, depending on its use. It is a contact, residual and stomach

acting insecticide with repellency properties. It is photostable but not systemic nor fumigant.

Karate® is not leached from near the soil surface and is readily degraded in soil. It has no harmful effects on earthworms, other soil microorganisms or soil processes such as respiration, organic matter decomposition and nitrification. This insecticide presents little hazard to fish and other aquatic organisms in practice because of the low rates of application, the rapid adsorption of the chemical to suspended soil particles and its degradation in water. Experiments have shown that bio-accumulation will not be a problem with Karate®. In addition to its degradation in the environment (soil and water) it has also been shown to be readily eliminated from aquatic animals.

Karate® shows no phytotoxicity to major food crops at recommended rates and dilutions. Because of the low rates of application and the degradation that occurs on plants, residues of Karate® on harvested crops are

negligible. Karate® is of low toxicity to birds. Although it is toxic to bees in laboratory tests, it has been tested in the field without causing any harm. Since pyrethroids are broad spectrum insecticides, it is not unexpected that they would be toxic to bees. As with other pyrethroids, Karate® acute oral toxicity to mammals varies markedly with the solvent and concentration used.

**Dr. Roger Bernier** (C-I-L Inc., Mississauga) was the second industry representative and the final symposium speaker. He spoke about biotechnological developments in insect control and used *Bacillus thuringiensis* as an example. *Bacillus thuringiensis*, popularly known by its acronym "B.t.", is a bacteriological insecticide that is now in common use in Canada's forests to control many common forest insect pests, especially the spruce budworm. B.t. is also used to control several agricultural insect pests throughout the world. B.t. is a bacterium which, as it grows, produces a crystalline protein that is toxic to the immature stages of specific pests. The protein crystal in the B.t. is ingested by the



Professor David J. Lewis, Chairman of the Symposium "New Developments in Insect Pest Control" with two Macdonald graduates, 1, Dr. Guy Boivin, PhD '81, Agriculture Canada, who spoke on "Lutte intégrée au Québec" and Dr. Charles Vincent, PhD '83, r, new President of the Entomological Society of Quebec.



## Seeking Solutions

## Fun Fact Fable Fiction

## Research Reports

by Dr. Robert L. Stewart  
Associate Dean, Research

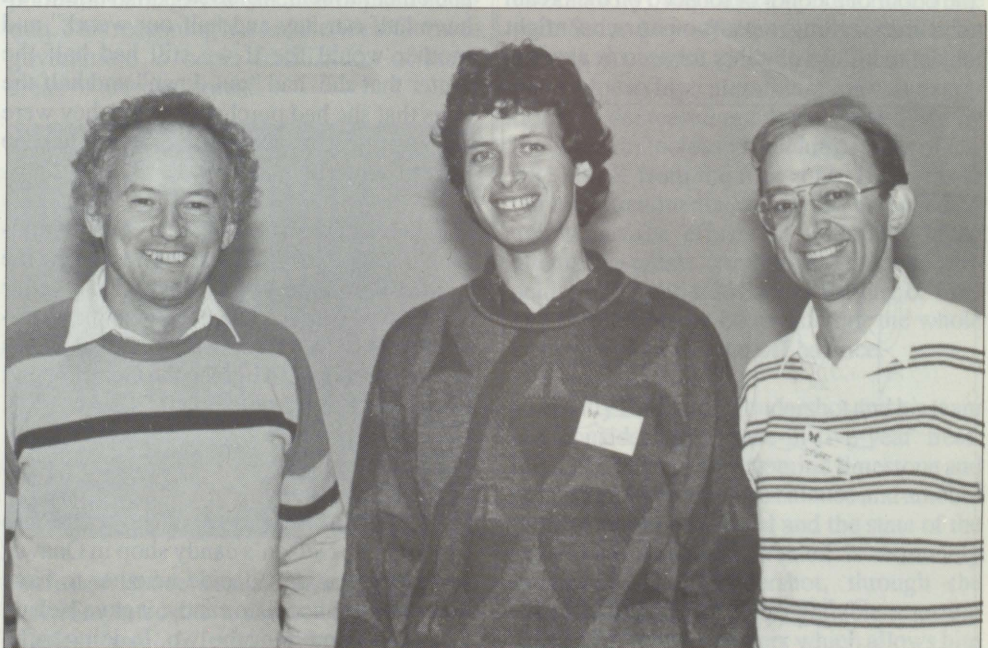
larvae as they consume sprayed foliage. The protein is solubilized and activated in the intestinal tract of some insects and the larvae soon become sick, stop eating, and die. The protein toxin is highly specific for the target pests and has no activity against useful insects, birds, mammals, or fish, making it an almost ideal insecticide.

In crop protection, the challenge now is to find new insecticides to overcome the insect resistance problem. Since few cases of B.t. resistance amongst insects have been reported, this microorganism represents an ideal candidate. However, B.t. is not without its drawbacks. Its narrow spectrum (a problem with pest complexes associated with most of the major crops), slow action, poor persistence on foliage, high cost of production and sensitivity to environmental factors, such as rain and sunlight, have limited its use. Spectrum and speed of action could be improved through genetic engineering. Persistence and sensitivity toward environmental factors will be solved by improved formulation and a better understanding of crystal structures. Cost of production should decrease through the use of improved bioreactors allowing a better oxygen transfer, adequate sensors for better monitoring and control throughout the fermentation run and improved downstream processes for B.t. recovery. Genetic engineering will also permit diversification of B.t. delivery systems. A number of research teams have directed their efforts towards the transfer and expression of B.t. crystal genes into, for example, tobacco and tomato plants. Other researchers have successfully transferred the same genes into root-colonizing microorganisms with the aim of controlling soil pests. Clearly, B.t. is becoming a safe, powerful, and effective weapon against both forest and agricultural insect pests.

The organizing committee of the Department of Entomology was pleased with the calibre of speakers and their presentations. Now if we could control insects as well as we can organize a symposium...



MAPAQ celebrated the launching of "l'entomologiste amateur." Left to right: Dr. Charles Vincent, Agriculture Canada, Dr. Michel Guibord, MAPAQ, Robert Loiselle, one of the authors, Jacqueline Garand, representing her husband/author and Macdonald graduate Daniel J. Leprince, PhD '84, and Dr. Gilles Emond, Head, Plant Science Research Service, MAPAQ.



Michael Cusson, Université Laval centre, was the recipient of the E. Melville DuPorte prize for the best student paper. Dr. Luc Jobin, MSc(Agr) '61, Canadian Forestry Service, 1, who, in his address to the audience, remembered Dr. DuPorte with affection and esteem, and Professor Stuart B. Hill, offer congratulations.



# Fun Fact Fable Fiction

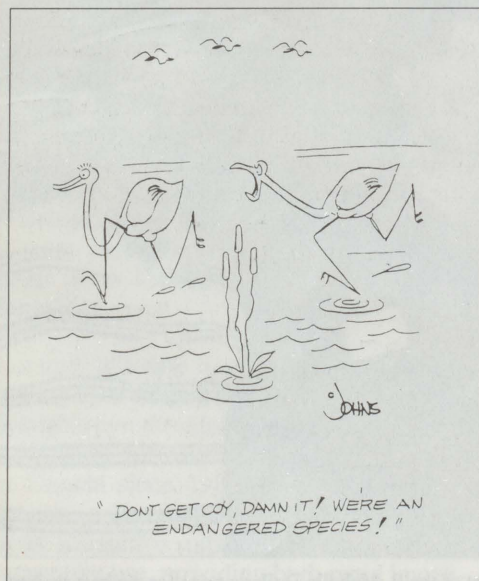
by Ralph H. Estey, Emeritus Professor  
Department of Plant Science

## Thanks

This is my lazy way of thanking all who have written or otherwise commented on this page, especially those who wrote about the English boy who began counting to a billion at the rate of 200 words per minute, eight hours per day, and 365 days each year. It is a fact that it would take more than 25,000 years to count to a billion at that rate in England, where a billion is a million million. Americans could count to a billion in about 25 years because their billion is a thousand times smaller than the British one. I don't really know the official size of a billion in Canada, but our news media assume it is the same as the American when they report our national debt in so many billions. There would be no economic hope for us if they were referring to British billions.

## Golden Age Humour

Remember the good old days when the only social security was sen sen? Younger readers may not know that sen sen was used to mask the odour of alcohol or tobacco on the breath of a man calling on a woman who might object to his use of either tobacco or alcohol.



Courtesy: Royal Canadian Geographical Society

## Old Trades

The names of trades and occupations change or die quite rapidly. The "trades" of the Loyalists who arrived in Saint John, N.B., in the 1780s included: cordwainer, breech-maker, glazier, backer, currier, cooper, scrapboiler, chandler, hatter, yeoman and wheelwright, to name only a few of those that are not well known today.

## Eyes Right

Queen Elizabeth always displays her right profile on stamps and coins, not because she thinks her right side is more photogenic than the left but because of tradition - the tradition that British monarchs face in the opposite direction to that of their predecessor.

## Mid Winter

Astronomically, midwinter occurs on or about February 2, known as Candlemas Day or perhaps more commonly, Groundhog Day. It was during this week that my father, and other farmers, would say "We should still have half our hay and half our wood," and mother would see if we still had half the butter that she had "put down" and half the eggs that she had purchased when they were at a low price and put in "water glass" to keep for the winter.

Candlemas Day has nothing to do with midwinter. It is a Christian festival honouring the purification of the Virgin Mary, 40 days after the birth of Christ. The use of candles symbolizes the words of Simeon, that Jesus would be "a light to lighten the Gentiles, and the glory of thy people Israel." (Luke 2:32).

## I-scream

In 1920 when an eight year old boy came into Christian K. Nelson's candy shop in Onawa, Iowa, and couldn't decide whether to have ice cream or chocolate candy, it gave Nelson the idea of combining the two. In doing so, he invented the Eskimo Pie, which he originally called I-scream, North America's first chocolate-coated ice cream bar.

## Tree of Life

The story that the Indian cure for scurvy was to drink water in which the bark and leaves of white cedar (*Thuja occidentalis*) had been steeped goes back to the time of Jacques Cartier and the alleged recovery of his crew from scurvy by this remedy. That is why the tree is also known as *arbor vitae*, the tree of life. I wonder if anyone has tested the vitamin "C" content of white cedar "tea," to see if this story is just another fable?

## Picturesque Speech

Why do we still use the expression "one night stand" when in the 1980s there seems to be so little standing involved?

## We're Loaded

The microbe population on and inside every adult man and woman is more than that of all the people on earth.

## A Lyric poem?

An ode on the antiquity of microbes  
Adam  
Had 'em

## A Walker

A pedestrian is a man who has two cars, a wife, and one or more teenage children.

## Canada's Big Cheese

In 1893 cheesemakers working at the Dominion Experimental Dairy Station in Perth, Ontario, using 94,000 kilograms (207,200 pounds) of milk made a giant round cheese that was over 6 meters (20 feet) in circumference and almost 2 meters (6 feet) thick. The finished cheese weighed 10,000 kilograms (22,000 pounds) and was transported to the World's Fair that was held in Chicago that year by the Canadian Pacific Railway Company on a special World's Fair Cheese Train. It won a top prize at the fair and was purchased by Thomas Lipton, the English tea merchant, who shipped it to England and sold it in small pieces.



# Seeking Solutions

## Research Reports

by Dr. Robin K. Stewart  
Associate Dean, Research

The other night I was sitting in the dressing room of Glenfinnan Ice Rink after playing hockey. One of my line-mates turned to me and asked me what he should do about a maple tree in his garden that was suffering from maple die back. As is quite common for me, I had to confess that I did not know the answer to his question. As is also quite common, however, I was able to say that I had a colleague at Macdonald College who was looking for the solution to his problem.

I went down to the Department of Renewable Resources and put the question to Professor Willie Hendershot (Soil Science) who supplied me with some valuable information that I would like to share with you.

The forest decline that is being observed in southern Quebec and elsewhere in North America and Europe is thought by most concerned scientists to be related to air pollution and acid rain. The evidence for this is mainly the geographical distribution of forest decline and industrialization; those areas that are downwind of major pollution sources show varying degrees of forest decline.

Many researchers are looking for the primary cause of the decline and numerous hypotheses have been proposed, including:

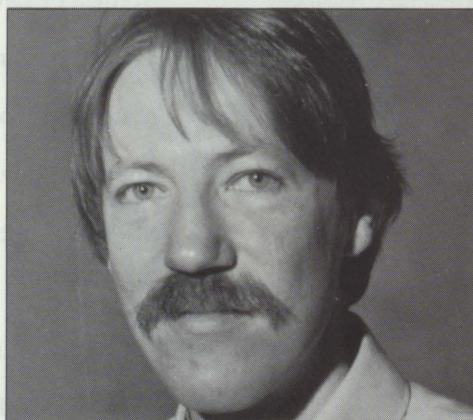
- 1) direct toxic effects on the above ground parts of the plant by ozone,  $\text{SO}_2$  or other gases; and
- 2) effects on nutrient supply due to changes in the soils including such factors as increased nitrogen levels, soil acidification, and accelerated leaching of base cations (Ca, Mg, K).

As a soil scientist Professor Hendershot has been investigating the possible effects of increased acid loading on various soil properties. From the simplest perspective, increasing the acidity of the precipitation will force the system to a new, more acidic equilibrium. In any system in which pH is being controlled by weak buffering reactions, as is the case in the acidic soils of southern Quebec, an addition of acid will result in a shift to lower pH.

In contrast, many western Canadian soils, and those developed on limestone, are strongly buffered by calcium carbonate; in such cases acid additions will decrease the amount of  $\text{CaCO}_3$  in the soil without altering the pH.

Soil acidification and the leaching of base cations may or may not be a primary cause of forest decline; the evidence is somewhat ambiguous. While acid precipitation is almost certainly contributing to soil acidification and loss of bases, this does not explain all of the changes that have taken place in the forests over the last 20 years. Even on sites with less than ideal natural soil fertility, the forests were healthy up until recently.

On the short term the question as to what is a primary cause and what is merely a contributing factor is academic. There is ample evidence that trees growing in nutrient rich environments and that also have the proper balance between nutrients are showing fewer symptoms of decline. Studies have even shown that the resistance of plants to air pollution damage is a function of plant nutrition. This reasoning has led the West German government to begin fertilization of large areas of affected forest.



Professor Hendershot's research group has just completed the analysis of leaves from maples from different parts of southern Quebec. In many cases there appear to be nutrient deficiencies of Ca, Mg, or K and, in addition, an imbalance in the Ca/Al molar

ratio indicative of soil acidity problems. There is, therefore, strong evidence that liming and fertilization would be beneficial to maples suffering from decline.

In order to avoid antagonism between different elements in the soil the applications of lime and fertilizer must be done correctly. For example, if a soil has low K levels but an acceptable Ca/Al ratio, then the addition of  $\text{K}_2\text{SO}_4$  fertilizer would appear to be the only requirement. Unfortunately, the addition of K fertilizer alone would cause soil acidification by a number of chain reactions.

At the moment sugarbush operators are searching desperately for an amendment that they can use to decrease dieback. Since government has not been able to come up with recommendations, the operators are ready to try anything. In this type of knowledge vacuum, a lot of people are going to get burned by applying the wrong treatments.

Professor Hendershot's working hypothesis is that air pollution, including acid deposition (wet and dry), has caused a pH decrease in the soil. Secondary effects of this acidification are: a) decreased growth of fine roots of plants due to high aluminium ion concentrations; b) decreased uptake of Ca and Mg by trees, and c) increased leaching losses of Ca, Mg, and K from the root zone. He wants to develop treatments which are intended to counteract the effects of pollutants in an attempt to create conditions similar to pre-acid rain conditions. Excess loading of lime and fertilizer must be avoided or the whole system will be thrown off balance.

Currently Professor Hendershot and his team are considering a once-in-five-year treatment of a balance of dolomitic limestone and potassium fertilizer. The balance and amount of these could be critical and the state of the individual site to be treated is extremely important. Dr. Hendershot, through the Morgan Arboretum, has available a testing service for maple growers which allows him to make reasonable fertilizer recommendations at this time. He is still, however, seeking further solutions.



# Campus Life

## A First for Quebec's English Farmers

by Flore Fournier  
Diploma in Agriculture Program

English-speaking farmers in Quebec will now be able to take farm accounting at home. Macdonald College has combined efforts with the Quebec Ministry of Agriculture, Fisheries and Food and the Quebec Ministry of Education to translate a correspondence course into English and make it available to farmers this winter.

Farm accounting has proven to be the most popular of the series of correspondence courses now being offered to Quebec's French-speaking farmers. Over 3,000 people have enrolled in it so far. This in itself speaks of the need for farmers to get a better grasp of accounting, and it was felt that English-speaking farmers should have the same opportunity.

It is, therefore, with great enthusiasm that a team from Macdonald College (namely

Maria Harvey, Marcel Couture, Flore Fournier, Laurie Baker, Lorraine Coulman, Allen Godfrey) have worked on this project since last May. Apart from the translation as such, an up-dating of the material was done in close collaboration with the staff of the farm management club, le Syndicat de gestion de Vaudreuil-Soulanges Beauharnois.

The course is well organized and allows farmers who cannot leave their farms to further their education in accounting where and when it is convenient for them. The cost of the course is \$32.00 and no prior knowledge of accounting is required. Materials are supplied, but it is suggested that a pocket calculator would be a valuable tool. There are lessons, tests, and four assignments to be corrected by the instructors who, it is emphasized, are available for assistance any time that a problem may arise. Farmers may work

at their own speed; some may do the course in a month while others may take a year.

We at Macdonald College wish those farmers who enroll in the course great success and hail the Ministries' initiative.

Further information can be obtained at:

La direction des cours par correspondance  
600, rue Fullum  
Montreal, Que.,  
H2K 4L1

Telephone: Montreal area:  
1-514-873-2210  
Elsewhere in Quebec:  
1-800-361-4886

## AIC Annual Conference to be Held in Montreal in 1989

The Agricultural Institute of Canada (AIC) is the national body that has among its members professional agrologists from across Canada and members of several Canadian scientific societies of direct importance to agriculture. There are about 5,000 members and each year an annual conference is held.

The last time that the annual conference was held in the Montreal area was Centennial Year, 1967 — EXPO! — when the event was centred on the Macdonald campus. In 20 years the number of participants has grown to such an extent that larger facilities are now needed. Three years ago the decision was made to hold the 1989 conference at McGill University. A general committee has been operating and formulating a general plan of action. With less than two years to go, there is a need to recruit volunteers to work in a number of areas. The annual conference is a prestigious event and it is an honour and a privilege for the Faculty of Agriculture of Macdonald College to act as hosts for this occasion.

Anyone interested in assisting on committees should contact any of the following general committee members:

|                       |                    |          |                |
|-----------------------|--------------------|----------|----------------|
| General Chairman      | Norman C. Lawson   | 398-7855 | Plant Science  |
| Co-Chairman           | Bruce E. Coulman   | 398-7852 | Plant Science  |
| Accommodation         | Alan K. Watson     | 398-7858 | Plant Science  |
| Entertainment         | Robin K. Stewart   | 398-7901 | Entomology     |
| Publicity             | Marcel J. Couture  | 398-7702 | Ag Economics   |
| Accompanying Persons  | Trinkie Coffin     | 626-7876 |                |
| Program               | Garth H. Coffin    | 398-7820 | Ag Economics   |
| Finance               | Angus F. MacKenzie | 398-7943 | Soil Science   |
| Reception & Welcoming | Guy R. Mehuys      | 398-7944 | Soil Science   |
| Registration          | Eric E. Norris     | 398-7775 | Ag Engineering |
| Transportation        | Ted McKyes         | 398-7782 | Ag Engineering |



## Pasta Perfect - Again!

by Hazel M. Clarke

"When I'm at home I'm always fiddling around with food and trying to come up with new recipes. This time I had a definite reason." The "fiddling around" in the kitchen paid off for Diane Bertrand as, for the second year in a row, a student from Macdonald College won the first prize of \$1,000 in the Canadian Pasta Manufacturers Association pasta recipe contest for Quebec students in Dietetics and Nutrition. Last year's winner Suzana Vidanovic convinced Diane and third place winner Marisa Lavazelli, also from Mac, that they should enter the contest. The students are pleased that they did and, as an added bonus, the challenge of coming up with a suitable recipe that is both tasty and nutritious has both of them thinking of recipe development as a possible career when they graduate.

Diane Bertrand, who is from Laval, did two years in the Dietetics Major before switching to Food and Consumer Services. Diane, who hopes to graduate in 1989, is secretary of the Food and Consumer Affairs Association, formerly ACHES. Having worked summers at the Chateau Montebello as an assistant social director, Diane became interested in restaurant management and thus decided to change majors to increase this focus in her studies. If she got a job in a restaurant, she said she would like to start out by working right in the kitchen with the chef as she feels that restaurant food, while still showing a profit, could be more nutritious. Diane also said she would love to own a restaurant some day.

Diane had two ideas for the contest: a dessert or an omelet. "I tried the omelet first and it was good so I kept on working at it. My roommates and my family acted as guinea pigs as I made the recipe about 10 times, and I certainly must thank them for trying each new concoction. I changed from ground beef to tuna, then I tried chicken. I tried different cheese. I tried lasagna noodles instead of spaghetti. I added tomato sauce. Finally I came up with Omeletti. It is nutritious as it has all four food groups in it. Omeletti is an excellent source of thiamine and Vitamin A and a good source of niacin and Vitamin C. It has only 33

calories and, I think, is original and different. It is also versatile and the ingredients can be found in most kitchens. The judges thought it looked like a pizza, which would appeal to youngsters. One criticism they had was that it was a little dry."

Diane was so excited that she says she doesn't remember her thank you speech but she did want to point out that a contest such as this allows students who are not in cooking schools to show that they, too, can be creative when it comes to food. She was also grateful to be able to work with students from other universities — but she's glad Mac won!

She is very grateful for the prize money and, as she has had very little time for travel, hopes that some of the winnings may go toward a trip.

Dietetics major, Marisa Lavazelli, from Ahuntsic, was the third place winner with her recipe: Noodle Nest with Hallowe'en Sauce. Being in this contest was just one more good thing about being a student at Macdonald. Marisa really enjoys life here. She lives in

residence, takes the fitness course and social dancing and, even though she will not graduate until December 1988, she said that she dislikes the thought of leaving.

Before coming to Macdonald Marisa had heard about the pasta contest from her parents. She entered last year when Suzana won and decided to try again this year.

"I thought of using pumpkin because it is inexpensive and people might like to try using it but don't know how to," Marisa explained in describing her recipe. "You can use either fresh or canned pumpkin so it can be made year round. I chose ingredients that were not expensive and that most people would have in their kitchens."

Marisa said that she tested the recipes about five times. "I started at my boyfriend's home, and he and his family ate it. Then I tried it on my boyfriend and two of his friends. I also tried it at home on my family."

The afternoon of the contest, which was held at the MAAA (Montreal Amateur Athletics



Congratulating the winner! From l to r, Vince Cardillo from Lancia, Diane Bertrand, Serge Bragdon from Catelli, Linda Jacobs Currie from the School of Dietetics and Human Nutrition, and Gino Berlingieri from Primo Foods.





Association) in Montreal, the students had to make the recipe for 12 people. "As my recipe took some time, I started at 2:30 and went right through until 5 p.m.," Marisa said. Marisa made pancakes and filled them with vermicelli noodles and then topped them with the pumpkin sauce. Marisa thinks the judges found her recipe inexpensive, and, as she used pumpkin, very original. Since the contest Marisa has tried the recipe again and has found that she prefers it when she has used less pasta, say 150 grams.

The three other contestants made soup, a salad using coloured pasta, and a vegetarian lasagna. The judges for the contest were Mesdames Françoise Kayler, a journalist from *La Presse*, Frederique Fournier, editor of *Sel et Poivre*, and Diane Robitaille, dietitian and food service director at the Université du Québec à Montréal.

Both girls said that they were pleased to see Linda Jacobs Currie at the reception as she gave them some encouragement. Marisa said that she first met Linda at her CEGEP and found her so nice she decided to come to Macdonald.

Both girls are bilingual; space has permitted us to publish the winning recipe in English and French.

## OMELETTI

|        |                                         |                 |
|--------|-----------------------------------------|-----------------|
| 200 g  | spaghetti (750 ml cooked spaghetti)     | 3 cups (cooked) |
| 2.5 l  | water                                   | 10 cups         |
| 5 ml   | salt                                    | 1 tsp.          |
| 1      | clove of garlic, crushed                | 1               |
| 5 ml   | butter or margarine                     | 1 tsp.          |
| 369 g  | chunk tuna, in water                    | 14 oz.          |
| 1      | small onion, chopped                    | 1               |
| 1      | package (284g) fresh spinach, washed OR |                 |
| 300 g  | frozen spinach                          | 10 oz.          |
| 5 ml   | basil                                   | 1 tsp.          |
| 2 ml   | thyme                                   | 1/2 tsp.        |
| 4      | medium eggs                             | 4               |
| 2 ml   | pepper                                  | 1/2 tsp.        |
| 1      | can (213 ml) tomato sauce *             | 1               |
| 250 ml | cheddar cheese, grated                  | 1 cup           |

\* Can be replaced by fresh tomato slices.

Cook spaghetti in boiling salted water until tender, but firm (al dente).

Drain tuna water in a medium size saucepan. Bring to a boil over high heat. Add the onion and spinach. Simmer over low heat, uncovered for 5 minutes (10 minutes for frozen spinach). Remove from heat and add the tuna, basil, and thyme. Mix well.

Drain the spaghetti and rinse with hot water. Drain well. Lightly grease or butter a 26 cm frying pan that may be placed in the oven. Add the spaghetti to the pan and mix well with the garlic and butter. Spread evenly in the bottom of the pan.

Cover the spaghetti with the tuna-spinach mix.

Beat the eggs and pepper with a fork and pour them evenly over the above layers.

Cook in a 180°C (350°F) oven for 30 minutes.

Remove from oven. Spread the tomato sauce over entire omeletti and sprinkle with the cheese. Place back in oven at broil until the cheese is golden, about 2 minutes.

## OMELETTI

|        |                                                  |              |
|--------|--------------------------------------------------|--------------|
| 200 g  | de spaghetti (750 ml de spaghetti cuit)          | 6 oz.        |
| 2.5 L  | d'eau                                            | 10 tasses    |
| 5 mL   | de sel                                           | 1 c. à thé   |
| 1      | gousse d'ail, écrasée                            | 1            |
| 5 mL   | de beurre ou de margarine                        | 1 c. à thé   |
| 369 g  | de thon en morceaux, dans l'eau                  | 7 1/2 oz     |
| 1      | petit oignon, haché                              | 1            |
| 1      | paquet (284 g) d'épinards frais, lavés, parés OU |              |
| 300 g  | d'épinards congelés                              | 10 oz.       |
| 5 mL   | de basilic                                       | 1 c. à thé   |
| 2 mL   | de thym                                          | 1/2 c. à thé |
| 4      | oeufs moyens                                     | 4            |
| 2 mL   | de poivre                                        | 1/2 c. à thé |
| 1      | boite (213 ml) de sauce aux tomates*             | 1            |
| 250 mL | de fromage cheddar, râpé                         | 1 tasse      |

\*Peut être remplacé par des tranches de tomates fraîches.

Faire cuire les spaghettis dans l'eau bouillante salée, sans couvrir jusqu'à ce que les pâtes soient tendres mais fermes (al dente).

Egoutter l'eau du thon dans une casserole de grosseur moyenne. Faire bouillir à feu vif. Ajouter l'oignon haché et les épinards. Faire mijoter à feu doux, sans couvrir, pendant 5 minutes (10 min. pour épinards congelés). Retirer du feu, ajouter le thon, le basilic et le thym. Mélanger.

Egoutter les spaghettis et les rincer à l'eau chaude. Bien égoutter. Recouvrir une poêle à frire de 26 cm (pouvant aller au four) avec 5 ml de beurre ou de margarine fondue.\*\* Bien mélanger les spaghettis chauds avec le beurre et l'ail dans la poêle. Etendre le tout au fond. Recouvrir les spaghettis avec le mélange de thon et épinards.

Battre les oeufs et le poivre avec une fourchette et les verser également sur la préparation.

Cuire au four à 180°C (350°F) pendant 30 minutes.

Retirer du four. Etaler la sauce aux tomates sur le dessus et saupoudrer avec le fromage. Remettre au four à gril (broil) jusqu'à ce que le fromage soit doré - environ 2 minutes.



Wait 5 minutes before cutting and serving.

Yield: 6 portions

Attendre 5 minutes avant de couper et servir.

Donne 6 portions.

\*\*Peut être vaporiser avec un enduit végétal pur hypocalorique.

A birthday coming up.  
Give the gift that lasts all  
year...

The Macdonald Journal

Cook diced pumpkin 15 minutes in 375 ml boiling water. Meanwhile, in saucepan, saute the onion, celery, and carrot in olive oil. Add milk while stirring gently over medium heat.

#### NOODLE NESTS ... HALLOWE'EN SAUCE

##### Hallowe'en Sauce

|                                            |                       |     |       |
|--------------------------------------------|-----------------------|-----|-------|
| 400 g                                      | vermicelli            | 3/4 | pound |
| 450 g                                      | peeled, diced pumpkin | 1   | pound |
| 125 ml                                     | onion, minced         | 1/2 | cup   |
| 180 ml                                     | celery, chopped       | 3/4 | cup   |
| 1                                          | carrot, sliced        | 1   |       |
| 15 ml                                      | olive oil             | 1   | Tbsp  |
| 180 ml                                     | 2% milk               | 3/4 | cup   |
| Pepper, parsley, paprika, oregano to taste |                       |     |       |

Mash or purée pumpkin and add to sauce. Season to taste and simmer on low heat. Cook vermicelli 5 minutes in 4 L boiling water.

##### Crepe batter:

|        |                   |     |     |
|--------|-------------------|-----|-----|
| 2      | medium eggs       | 2   |     |
| 125 ml | all purpose flour | 1/2 | cup |
| 180 ml | 2% milk           | 3/4 | cup |

Beat eggs with wire whisk. Add flour and stirring, add milk. Whisk until smooth. Using about 60 ml of batter per crepe, make 6 crepes. Keep warm.

Drain vermicelli. Put 125 ml of noodles on each crepe, roll and pour sauce on top.

If desired, serve with a green vegetable, tomatoes, and garnish with parsley.

Yield: 6 portions

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# More on Reunion '87

## The Class of '47

Thanks to the outstanding efforts of Helen (Miller) Goldhamer, the Class of '47 had an excellent 40th Reunion. The September 25th weekend included a Friday evening get-together at the Pointe Claire Holiday Inn, participation in the various Saturday activities at the college and a Saturday evening at the Moxleys. Among those attending the various events were Sylvia (Eardley-Wilmot) and Allan Saunders, Joan (Oughtred) Buffey, Mary Jo (Mitton) McFadden, the Roly Greenbanks, the Robert Lachances, the Arthur Lelacheurs, the William MacLarens, the John Dawsons, the Charles Jeffersons, the Donald Mackays, and the Allan O'Briens.

The highlight of Saturday evening was a presentation of a series of blackout sketches written and produced by Allan O'Brien and ably assisted by Roly Greenbank. Props included a variety of headgear and facial gimmicks - and a wide variety of dialects were used.

The Class of '47 were impressed with the Class of '45 presentation of a cheque for \$12,000 for a special project. Doug Waterston's brief visit with us on the Saturday evening helped to initiate plans for a '47 project.



Roly Greenbank and Allan O'Brien presenting blackout sketches written and produced by Allan for the Class of '47.



Helen (Miller) Goldhamer, '47 Class Alumni Rep, is surrounded by classmates, l to r, Joan (Oughtred) Buffey, Sylvie (Eardley-Wilmot) Saunders, and Mary Jo (Mitton) McFadden.



The Class of '47's John Dawson from Ottawa and Art Lelacheur from Sackville, N.B., reminisce.



## Macdonald Branch 1987-88

### Past President:

James Wilding, BSc (Agr) '54

### President:

Jean McHarg, BSc (HEC) '60

### Vice-President:

Richard Caron, BSc (Agr) '68

### Treasurer:

Robert L. Gales, BSc (Agr) '68

### Secretary:

Katherine MacLean, BSc (Agr) '81

### Faculty Representative:

Chandra Madramootoo, BSc (Agr) '77,  
PhD '85

### Diploma Graduates' Representative:

Marcel J. Couture, BSc (Agr) '72

### Chairman, Macdonald AMF:

Douglas Pashleigh, BSc (Agr) '52

### Directors:

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(Agr) '71, MBA '82

Harold Blenkhorn, BSc (Agr) '50

Mary (Trinkie) Coffin, BSc(HEC) '62

Stuart Hackwell, BSc (Agr Eng) '86

Peter Knox, BSc (Agr) '74

Theresa Rivera, BSc (FSc) '77

### Regional Vice-Presidents:

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Winnipeg, Manitoba

Sybil Cutcliffe, Dip(Ed) '54

Charlottetown, P.E.I.

Murray D. McEwen, BSc (Agr) '53

Acton, Ontario

Gibson H. Patterson, BSc (Agr) '60

Metcalfe, Ontario

Chesley E. Smith, BSc (Agr) '54

Oromocto, N.B.

### Members (ex officio):

Dr. Roger B. Buckland

Gregory Weil



Catching up on the news of the Class of '37 were (l to r) Donald Adamson, BSc (Agr) '37, Joan Adamson, from Beaconsfield, Que., Beryl MacDonald, and Dr. Harry MacDonald, BSc (Agr) '37 from Ithaca, N.Y.



The Class of '77 are collecting money for the Library Endowment Fund for their 10th anniversary project. Seen here with the Librarian Janet Finlayson, centre, are Ginger Stones BSc(Agr) '77, 1, and Debbie Gilmer, BSc(Agr) '77.



# Beyond These Gates

## Profile: Jean McHarg, Award Recipient

At the 130th Annual Meeting of the Graduates' Society of McGill University, held on September 17, 1987, at the St. James's Club in Montreal, Jean McHarg, BSc (HEc) '60, was presented by David H. Laidley, President of the Graduates' Society, with the Distinguished Service Award. Jean McHarg is the new President of the Macdonald Branch of the McGill Graduates' Society. In presenting Jean McHarg for the award, Richard W. Pound, Chairman of the Honours and Awards Committee said:

"A native of the Maritimes, it was the reputation of Macdonald College which enticed Jean McHarg to Quebec from Nova Scotia. Following Mac, she obtained her BEd at Mount Allison and taught at Lake of Two Mountains until 1971. After teaching one year in professional cooking, she moved to Chambly County High School where she teaches all the facets of the Home Economics program.

"As a Home Economist and graduate of Macdonald College, she has maintained close ties with the college through her personal contacts and membership in professional organizations - the Quebec and the Canadian Home Economics Associations.

"Jean McHarg has served as permanent class secretary and has been writing newsletters for some 20 years. Her persuasive personality, infectious sense of humour, and reputation for 'getting the job done' are some of the reasons why, starting in 1971, she assumed the additional duties of class agent. Fondness for her college days and the special camaraderie that prevailed among the students living in residence has encouraged her to keep track of every member of the class, to encourage and to remind them to do something for the college. It is no surprise that today it is one of the outstanding classes both in participation and in donations to the Alma Mater Fund.

"Jean's involvement with the Macdonald Branch of the Graduates' Society has been long-standing. For the last decade she has served as a director and for six of these years

has managed its budget as treasurer. She has also been a regular participant in the annual phonathon campaign on behalf of the college.

"Her personal and professional skills really came to the fore at Macdonald's 1985 Homecoming weekend. In addition to heading up the special 25th anniversary reunion for her classmates, she took on the task of 1985 overall Reunion Chairman, organizing and coordinating a hectic program for 200 returning graduates. The result was such a success that she was prevailed upon to take on the chairmanship again in 1986!

"Frequent visits to Macdonald in the 60s to attend professional workshops and involvement with the Macdonald Branch in the 70s have enabled her to keep abreast of the many changes that have taken place at Macdonald and she has, in consequence, become something of a Macdonald historian.

"As a representative on the Quebec Ministry of Education's Committee, Jean McHarg has helped to plan and now to implement the new 'Skills in Living' course which has become compulsory for both boys and girls in Quebec. Thanks to Jean, the present generation of boys will learn to fend for themselves through instruction in cooking, sewing, and money management, in addition to cleaning and ironing! Jean McHarg sums up her education at Macdonald and close affinity with agriculture by saying 'as a Home Economist concerned with the well-being of the family, I think that much of the quality of life we are striving to achieve is rooted in agriculture because food production is so basic to that well-being.'

"By presenting Jean McHarg as a recipient of the Distinguished Service Award from our society, not only do we recognize Jean's outstanding contributions to the society but, in particular, to the entire Macdonald Branch."



David H. Laidley, President of the Graduates' Society of McGill University, presenting Jean McHarg, BSc (HEc) '60, with her Distinguished Service Award.



## Diploma Corner

## Profile: Winston Ingalls, A Star of the '60s

by Hazel M. Clarke

"Was this guy ever a gifted athlete; you have to meet him!" said Henry Garino, Director of Extension and a keen advocate of intercollegiate sports, when he heard that Winston Ingalls, BSc (Agr) '68, was at Macdonald for a QFA Field Day. We heard Winston, who is Product Group Director for West Agro Inc., in Kansas City, Missouri, talk about getting the maximum output from milking equipment and then Henry Garino and Winston talked about sports and the days when they were both students at Macdonald, as well as the years since Winston went south of the border.

Winston grew up on a 250-acre dairy farm near Magog in the Eastern Townships. "My younger brother Ken has modernized the home farm and is doing well," Winston said. "My parents are still there. My father, who is 87, has been on the same farm for 75 years."

Winston said he came to Macdonald specifically to get an education but having been active in track and field in high school he also wanted to get involved in the sports program at Macdonald. "It was a big interest of mine," he remembered "and it certainly created opportunities for me. I got to meet people I had something in common with, namely, a love of sports."

His studies didn't suffer either; actually it was the reverse of what some might think. "As I was so interested in football and basketball throughout my years at Macdonald and because it was so important to me I was willing to put extra effort into the academic side so as to be sure I would be eligible to play."

"Intercollegiate sports were fun for everybody, participants and spectators alike," Winston recalled. "You played a football game and then there were some great times after the game and a lot of people to meet. There was a lot of student interest. If we were going to play Bishop's University, then everybody knew, and there was a train full of people all going to Bishop's with a common mission. I remember one time when we played the Royal Military College and the



guys literally ran all the way from Macdonald to Kingston with a cadet in effigy on a stretcher. They were going to hang this thing up in Kingston. I think the student population is better off when you have this kind of thing going on. If you just spend the day studying and then go home, it's not much fun."

Winston also remembered a particular basketball game when he is sure that the fans' support helped the team win. "When I was a Junior we had a strong basketball team, but Carleton always beat us. We went up there with either two or three busloads of students, and it was as if we were playing at home. We had a nearly flawless game and must have beaten them by 15 points that day. It was a real thrill both for the players and for the student body."

Winston Ingalls majored in Animal Science and as he was interested in going on to do graduate studies, Dr. Bob Baker suggested the Department of Animal Science at Michigan State University. He has stayed in the United States ever since. Henry wondered how he coped with the transition from Macdonald to Michigan State.

"The people at Michigan State knew and recognized the ability of Macdonald College. They knew that this was a quality institution, and I think that may have helped me get into grad studies there. The transition was somewhat more difficult than I imagined it would be. One reason was that I didn't have an athletic outlet. It was all study and, at first, I didn't know many people. At that time Michigan State had 48,000 undergraduates and somewhere near 8,000 postgraduates, but I got immersed in the graduate program and went on from there."

Winston got his Masters in '71, and from then until 1974 he worked for a farm co-op and got married to a girl from the State of Michigan (they now have three children). He returned to Michigan State to start on a PhD program which was oriented toward dairy management and extension type activities. "Being from a farm, I felt comfortable talking to farmers and," Winston said. "I was interested in helping them. Life took a bit of a different turn in '78 when I got my PhD as I had an opportunity to join De Laval, now known as Alfa-Laval. Even though it was a chemical company, there were some elements of extension work that appealed to me. I was looking for information from all the various research centres working in the area of milk production, milking machines, mastitis research, and so on and transferring that information back to our company. I also represented the company at various functions and farmers' meetings, so even though it was a commercial company, I was involved in extension oriented activities. I feel there has to be a transfer of research information from the laboratory to the person that is doing the work. You can research something to death, but if you cannot transfer that information to the end user, in this case the farmer, then you really haven't served your function too well."

Winston is now Product Group Director for West Agro, a sister company of Alfa-Laval, which is involved with such speciality chemicals as teat dips, cleaners, and sanitizers.

*Continued on page 36*



## Profile: Cary Silber, Caterer Extraordinary

by Marion Fleming\*

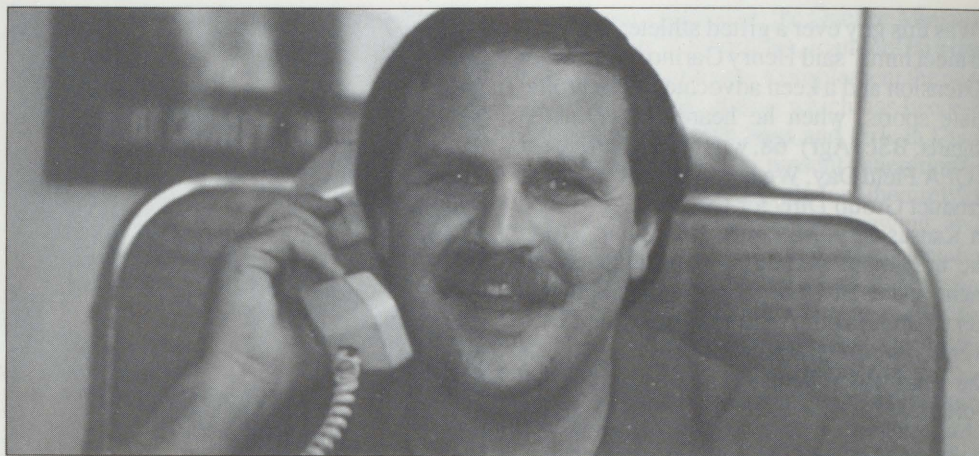
Cary Silber estimates that his Toronto company caters to 150,000 to 200,000 people a year. Numbers like that can only spell success for Cary, a 1975 Food Science graduate, and from the amount of hard work and endless energy that he has put into his company Encore - Food with Elegance - it is well deserved.

Originally a Montrealer, in recalling his time at Macdonald, Cary particularly remembers Professor Diane Raymond. He liked having a professor who had been in the working world. "She had a lot of practical knowledge," he said. One feels that Cary must have absorbed some of that knowledge and put it to good use in the years that have followed. After graduating in 1975, he worked in the food service area of Eaton for about nine months, then joined a catering company.

In 1977 Cary moved his family - he married a Montreal girl and they have two children - to Toronto where he and three others started a catering business. Two years ago two partners were bought out, and he and his remaining partner have continued the business. At first, they supplied gourmet food places in Toronto but since then they have found it more profitable to be on their own.

Cary and his partner have built their business on word-of-mouth advertising and referrals, and they will cater for any number from a small social at home to a large corporate function. They do all the catering for the Richmond Hill Country Club where Cary estimates they cater for 40,000 a year. They have catered in various locations: the Roy Thompson Hall, the Toronto Zoo, hotels, office buildings, and condominiums. The occasions have included the opening of shopping malls, dietetic conventions, anniversaries, bar mizvahs, Cadillac Fairview installations - the list is endless. They have even produced food for 800 under canvas in the pouring rain!

Cary and his partner own the building where they do all the food preparation. They buy their produce fresh daily - meat from the local packers, fish from a speciality shop and so on.



They have 28 full time employees and about 150 part time waiters and waitresses. Wherever they go they use their own equipment and have portable convection ovens.

Cary Silber is a very personable, friendly individual, and his success is the personal touch. He really enjoys his work and has the right temperament for the job. The partners show great imagination in their presentations of food. As his file is full of notes of appreciation from individuals and companies complimenting him, it seems that his company is well named. There will be many more calls for Encore in Cary Silber's catering business.

*\*Our thanks to Marion Fleming for this article. Mrs. Fleming, a graduate from the*

*Continued from page 35*

University of Manitoba, was on staff in the School of Food Science from about 1969 to 1979. She worked with Professors Florence Farmer and Celia Ferguson, taught Food Fundamentals, and a Communications course with Professor Micheline Chevrier. She also worked on commercials for various companies on a free lance basis. Now living in Scarborough, Ont., Marion said that she and her husband have a pool on their property so swimming, along with ceramics, stained glass, and bridge keep her occupied. She has fond memories of Macdonald and says she misses her contact with the students in particular. We are delighted that she got in touch with one of her former students for us and hope we may hear from her again with news of other students in the Toronto area.

ers. The products he is responsible for are sold to veterinarians, food processing industries, bottling operations, milk processing plants, and cheese plants.

"I am not directly involved with the dairy farmer but because of my background I get asked for advice and also try to answer questions, particularly on mastitis, that are directly related to the farmer.

Turning back to sports, Henry told Winston that he would like to see more intercollegiate sports being played at Macdonald as he felt that competition within a league would motivate student interest, and weekend games -

and the social life afterwards - would improve the quality of life at Macdonald. Winston agreed that athletics are important and that anyone who can participate should. He will be pleased to know, therefore, that Macdonald now has a rugby team that has played an exhibition season and, according to Bill Ellyett, Athletics Director, if interest continues the way it has to date we could very well be playing in a league with McGill, Bishop's, and Concordia next year.

Henry Garino is one of the team's coaches. He just possibly may be helping to groom a Mac star of the 80s.



# Diploma Corner

## From Rockburn to Vanuatu: Reflections on a Long Journey

by Jim Currie, Dip'70, BSc(Agr) '81

I was lying on a white sand beach staring up at the underside of an overhanging coral cliff. A little further down, between my feet and across about 18 km of Pacific Ocean that would make the Blue Lagoon pale, was the misty vision of Mota Lava. I was worried. How was I supposed to write a story for the Macdonald Journal? It wasn't fair. A person can't concentrate under those circumstances; so I didn't. At least I had the inspiration of how to get started.

When Hazel wrote to ask for this article I knew I had problems. I knew that I couldn't just write the history of how I got where I am today because that would be about as dry as a job application. And I can remember a time when I didn't get much response to them either. Another problem that I had was I had to make up the questions and answer them too. At least when I was writing the Diploma Corner I personally interviewed all of my victims. What's up Hazel? Wouldn't your budget cover a quick trip to the South Pacific? It's a lot easier if someone else is doing half of the thinking.

Maybe if I start from this end and work backwards. Here happens to be Vanuatu, formerly the New Hebrides, and is about as far from Rockburn, Quebec, as I can get without starting to get cold again. It's about half way from Fiji to North Australia, and it is classified as one of the world's least developed nations. Which explains part of the reason why I am here. I've taken a contract through CUSO to assist in the agricultural development of this country. To paint the rosier picture of Vanuatu, it is a beautiful little South Pacific island nation. It's made up of about 80 islands forming a "Y" shaped archipelago stretching some 850 km north to south at about the same latitude south of the equator as Trinidad and the West Indies are north. About 135,000 people live here. Some are highly educated westernized businessmen; others are virtually bushmen still wearing assgrass and nambas (mini grass skirts and penis wrappers). It depends on where in the country you happen to live. Port Vila, the capital city, is a fully serviced, modern city (at least when the cargo boats arrive). Not a

metropolis by any stretch of the imagination. At 15,000 people, its smallness could make it a major tourist attraction if we were closer to somewhere. It is the centre of government, business, transport, communications, tourism, and expatriate socializing. Central Malekula, on the other hand, is only two steps removed from the Stone Age. Partly by choice since the village elders are well aware of the problems of the "developed?" world.

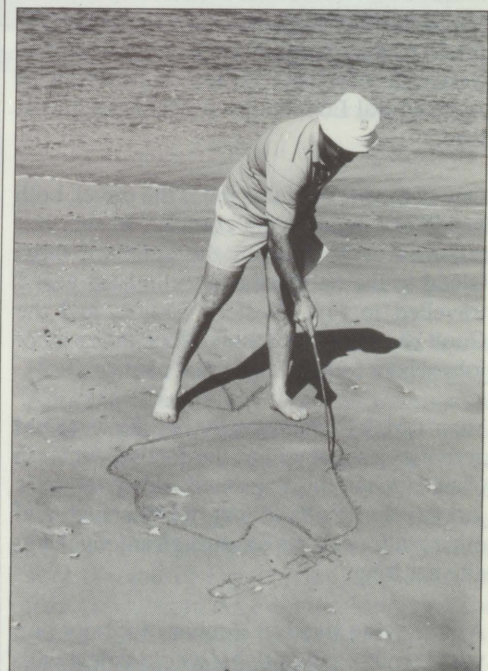


Proving once again that life in the South Pacific is not all sun and sandy beaches. This is in Tauranga, North Island, New Zealand.

Although one of the last countries on earth to be colonized, it made up time by hosting both France and England at the same time. Historically not one of the most constructive combinations imaginable. The book about the gaining of independence in 1980, "Beyond Pandemonium" says a lot in its title. People here are still strongly influenced by one or the other culture through the education systems. Slowly they are re-establishing their own culture or developing a new one. Contrary to popular belief not all South Pacific islanders are Polynesians. People here are Melanesians and are possibly a bit stronger in their customs and culture. They take pride in their ways and are cautious of change.

So that is where I am. Now what am I doing here? A much tougher question. What does a man from Rockburn, Quebec, know about cocoa, coconuts, coffee, and kava. A lot more than I did a year ago. At least now I know that you can make a drink out of all four! Obviously I wasn't brought down here just for my agricultural knowledge. I am what is called an Agriculture Liaison Officer (ALO) for the University of the South Pacific, but I am more closely attached to the Department of Agriculture, Livestock, and Forestry (DALF) of Vanuatu.

During the week my job entails a wide range of activities that all involve communications, or information transfer. The university has ALOs in eight different South Pacific countries, and it is our job to get information from point A to point B when needed. One of our main methods of access is through a weekly satellite communications hook-up in which we can pass information or requests through the system quickly. Researchers, government services, and Agriculture teachers can



Extension work where there is no power, overhead projectors, blackboards, etc. Use a smooth sand beach.



all use our services to search out information for them when they can't find it inside their own country. As support, we, the ALOs, have access to the researchers of the Faculty of Agriculture of USP and world access through the computer services of the library.

Within our own countries we set our own programs. We are in-country representatives of CARIS, the FAO - Current Agricultural Research Information System, and for CTA - the EEC funded Centre for Technical Assistance. After that we develop our own work. In my case I've helped organize workshops at both national and international levels for the Department of Agriculture, the Department of Education (Agriculture teachers) and for the Vanuatu Commodities Marketing Board. I produce a monthly newsletter from material that I receive or research, and I have assumed some teaching duties at the technical school and for Agriculture Field Officers. There is no need for dull moments. Many of my predecessor's duties were taken over by other sections of the DALF as new people were hired so I have been able to develop my own program and priorities. Incidentally, my predecessor - Meghann Douglas - is now a Research Associate in the Department of Agricultural Economics at Macdonald College.

One of the perks of this job is the travel, both inside and outside the country. In this last month I've been from the southern most island to the one furthest north. Last year I travelled to Fiji, Western Samoa, and the Cook Islands. I can't think of too many other jobs where I would have that chance.

I don't think I'll mention the regular weekend activities since it will be the dead of winter in Canada when this is printed. However, let's just say that scuba diving, windsurfing, and other outdoor sports figure high among them, all year long.

After having lived in Vanuatu for only one year I could easily fill this whole article with experiences from here. Good things like the people, customs, and activities. Bad things like plantation mentalities, economics, poli-



A touristy pose - visiting a local village, Aneityum, in Vanuatu.

tics, and religion. Exciting things like volcanoes, earthquakes, and cyclones. That wouldn't leave space for explaining how I got here, or why.

There are a lot of things involved in the "why" question. Basically it was because it is the type of work for which I've trained in a part of the world that I've always wanted to visit. It also has vast opportunity for opening doors if I wish to stay in this sort of work.

How I got here will take a lot longer. I don't mean the fact that I had a job interview with CUSO in Montreal, went to orientation in Ottawa, then hopped on a jet and took the milk-run via Toronto, Winnipeg, Calgary, Vancouver, Honolulu, Fiji and, finally, Vanuatu. That would be too glib. Besides somewhere in this article I have to mention the influence that Macdonald College has had on my life. I will not go right back to the beginning. It has taken a long time to live this life; there's no sense in taking that long to tell about it. Let's sum it up by saying that my love of things outdoors (not just agriculture) comes from growing up on and around a small farm in Rockburn in southwestern Quebec

right on the U.S. border. Upon finishing high school I made the decision to become a game warden, or a park warden, or something closely related. (This probably shows some of the respect that I built up for them while trying to avoid them during my mis-spent youth.) To do this I had to go to technical school. At that time the best one was in Saskatoon, Saskatchewan. Unfortunately, I was too young and academically underqualified, so off I went to Macdonald to correct that situation. It worked; after two years and decent standing in the Diploma Program I was accepted in S.A.I.T., only to find that there were no jobs if and when I graduated.

Meanwhile, they were scrambling for people in agriculture. So I opted out of renewable resources. Macdonald thus became a focal point for me even more than when I was a student. For 13 years I lived and worked there. In that amount of time there were few activities or emotions that weren't explored. I worked as a technician. I worked as a teacher. I studied for and got my BSc. I played sports with a passion (sometimes a bit too much). I loved the place and most of the people. Wherever I go I'll always be able to



promote Macdonald because I believe in its value and its potential as an institute of education and research. However, there's no sense in preaching to the converted. Let's leave it that the college as a whole has had a tremendous and long-lasting effect on all aspects of my life. Through my activities there I gained experience, friends, and contacts that will be important to me for the rest of my life. This, to me, is the most valuable part of any university experience, whether two years or 12 years. Technology changes, information changes, so people and contacts grow more important with passing years.

I think that in general I've made good contacts through my association with Macdonald. I still keep in touch with a lot of my colleagues of Dip '70 and rate them as my best friends because we share a lot of common interests. Throughout my time as a technician/teacher/student I kept meeting people. A never-ending supply of new students gave me a whole new crop of acquaintances every year. Many of them became friends. Their ideas and enthusiasm kept me young.

I'll not comment on the Diploma Program. We all have our reasons for liking it. We change, students needs change, and a program changes to suit present conditions. It has been good to me in all that counts.

Even though I'm 12,000 miles away I am still interested in what is happening at Macdonald. I really enjoy the Journal; it's like letters from home. I can keep up on the progress of friends and the recognition that their peers give to them. I can be saddened by the death of friends like Jim Houston. I can be excited by the opening of new farm buildings. And, of course, I'm grateful to have the opportunity to express those feelings.

About six years ago a very close friend of mine read my horoscope for me. I really don't believe in those things, but this one said that writing would become an important part of my life. Within the year I was writing this column for *The Macdonald Journal*, a column for the Quebec English language news-

papers, and a regular Farm Safety article for the QFA. I thought the prophecy fulfilled. Never did I expect that writing would play such an important role as it does now, both professionally and personally. However, I

have always found that the hardest stories to write are those that I've researched the most. After 38 years of research, this one is the toughest.



With other agricultural liaison officers, staff, and local government officials, Mangaia, Cook Islands.

*Continued from page 20*

worked in insect monitoring with MAPAQ (Quebec Ministry of Agriculture, Fisheries and Food), then in controlled environment research with a private company. Now with the Consumer Information Service of the Ontario Ministry of Agriculture and Food, Michel is answering public requests relating to Horticulture, Agriculture, and Food in the Toronto and Ottawa areas.

"It is a very diversified and satisfying life," Michel said. "In this job I can assess the great need for more information on organic farming."

BRIGETTE LALIBERTE, BSc(Agr) '87, was a Research Assistant for Professor Katherine Stewart in the Department of Plant Sci-

ence from May to August last year. She assisted with the research being conducted on management techniques and variety trials.

Since September, 1987, Brigitte has been a Horticulturist for the Ontario Ministry of Agriculture and Food. "I am an Information Officer at the Consumer Information Centre, and the job consists of answering questions regarding home gardening for the Metro Toronto and Ottawa regions. I find it extremely interesting as southern Ontario is very diverse in Horticulture, especially in fruit production. As I seek information for others, I am learning more about fruit trees, small fruits, ornamentals, greenhouse floriculture, and so on."



## QWI

## Executive Corner

As in past years, the Scholastic Awards Banquet, which was held on November 5, 1987, in the Centennial Centre, was a wonderful occasion to meet with students and staff from Macdonald College, and I welcomed the opportunity to present our QWI awards. Permit me to describe them.

Frederica Campbell Macfarlane was on staff at Macdonald College and was Superintendent of the QWI from 1913 to 1919. A scholarship in her memory is given to a student from rural Quebec who is in the School of Dietetics and Human Nutrition and is obtaining high marks. This year's recipient was Carole Coulombe, a Dietetics Major, from Montmagny, Que.

Mrs. Aldred Watt, M.B.E., was a distinguished Canadian who introduced the idea of the WI in England and Wales and was the first president of the Associated Country Women of the World from its formation in 1930 to 1947. A scholarship in her name is given to a student from rural Quebec who is in the School of Dietetics and Human Nutrition and shows qualities of leadership. Maryse Therrien, a Dietetics major from Ayer's Cliff, was the recipient of this award.

The QWI Bursary goes to a student who is either in the first or second year of the Diploma in Agriculture Program. Ann Ednie, from Franklin Centre, qualified as this year's recipient. Ann told me she hoped to go back home and manage the family's fruit farm. All three were delightful young people who took a keen interest in what was happening in rural Quebec.

Lucy French  
QWI President

## Farm Women's Conference

Delegates from all 10 provinces attended the Third National Farm Women's Conference, held November 12 to 14, 1987, at the University of Saskatchewan, Saskatoon. Each province was allowed 10 voting delegates and, with as many non-voters as could be accom-

modated, the attendance was around 250.

Some 10 speakers addressed the delegates. The first was Lee Clark, M.P. (Brandon-Souris) and Secretary to the Minister of Agriculture. He discussed the pros and cons of international trade. At present Canadians have in their favour \$16 billion in trade with the U.S. We have 75 to 80 per cent free trade now. The question and answer period followed with some heated discussion on free trade.

Provincial coordinators addressed the delegates during dinner. The Quebec coordinator, Lise Sarrazin, read an outline about the Quebec WI. Many coordinators mentioned the important contribution the WI has made in their provincial farm groups.

The second day opened with Dean McEwen from the University of Guelph and a reactor panel on the theme "Sustainable Agriculture." Dean McEwen chaired the federal government task force on sustainable agriculture. He said, "When agriculture hurts all of us hurt." This hurting is caused by weak market expansion in all parts of the world and poor prices often caused by undercutting prices in other countries. He discussed subsidies and said the subsidy system has to be revised. He gave examples: Wheat subsidy - U.S. per bushel, \$2.98; Europe, \$3.05, and Canada, \$ .85. Barley subsidy - U.S. per bushel, \$1.60, Europe, \$3.11, and Canada, \$ .33. There are 318,000 family-operated farms and 150,000 commercially-operated farms making only three per cent of the population in Canada today. The average cost of buying and operating a farm is \$500,000. Canadian farmers need large subsidies to compete in the short-term but new farm policies are badly needed if we want to be rid of subsidies.

Dorothy Middleton, President of the Eastern Ontario Women for the Survival of Agriculture, spoke on the "Educational needs of Canadian Farm Women," and Sylvia Gold spoke briefly on the report "Women in Agriculture" done by the Canadian Advisory Council on the Status of Women.

The highlight of my day was a speech by Mrs. Suzanna Cripps, Associate Minister of Agriculture for Alberta. Her topic "Where Decisions are Made" was most entertaining as she told us many anecdotes of her experiences living on a family farm.

Dr. Andy Schmitz, who farms south of Saskatoon, said he is making money on beef and losing it on wheat. He discussed the fact that U.S. agriculture is in bad shape, that the U.S. is undercutting Canadian wheat prices but even so is not selling that much more wheat than Canada. He feels that marketing boards and supply-management programs are helping eastern farmers, and he stated that human stress is more serious than economic stress among the farm population.

There were 67 resolutions on the table. Several of them were deleted, many of them were amended, and others tabled. Two Quebec resolutions were passed: one dealing with child care on the farm and the other on the equality of women as to salary, unemployment, insurance, paid professional education, and maternity leave.

The final day started with Dr. Isabel Anderson, Professor of Economics, University of Saskatchewan, and guest panelists. It was pointed out that lobbying, which provides information to the public, is big business in Washington. It was suggested that if you can write a letter or make a phone call, you can lobby. The new trade policies were discussed and it was again pointed out that not all people will be pleased or will approve.

Brigid Pyke, Ontario Federation of Agriculture President, spoke on "Farm Organizations." She is a very able speaker and certainly made us aware of the importance of women joining existing farmers' associations.

We had a session on networking. Wanda MacMurdo, P.E.I. provincial co-ordinator, explained that networking is to help farm women to become more knowledgeable and that it will link them across the country. It is hoped that by the next meeting all provinces



will have their networks in place and all farm women's groups will be linked in their own province and, in turn, across the country.

The final banquet was held in the Western Development Museum. While we enjoyed our coffee, Dr. Ellen McLean, President of ACWW, spoke to us. She asked us to stop and think of how fortunate we are to live where we do and to compare the kind of life we have with that in some Third World countries. She spoke of her travels in Poland and the Scandinavian countries and of the importance of women in their farming systems.

I would like to express my sincere thanks to the Quebec WI for asking me to represent them and to the Quebec Ministry of Agriculture for making it possible. It was an experience I shall always remember, and I hope I will be able to maintain the links I made with women from the West and the East.

Muriel Duffy  
Quebec Delegate

### Semi-Annual Board Meeting

Some highlights from the Semi-Annual Board Meeting held in Montreal in November.

The Safety Convener is now Elsie Prevost, so send her your safety tips and reports. A question was raised as to who should receive Abbie Pritchard Throws. These are for members who are incapacitated; they are not in recognition of outstanding work. Life memberships, on the other hand, are given to members who have been in WI for a long time and are in recognition of outstanding work. Pioneer History books are still available as well as updated handbooks, seals, and three souvenir plates.

The fall rallies were quite successful. It was suggested that a leadership course be offered as a future workshop. In the spring, set for April 14, Chateauguay-Huntingdon will host the rally for Missisquoi, Shefford, Brome, and Rouville. Montcalm will be hosting the rally for Baldwin Cartier and Argenteuil on



April 16. Pontiac and Gatineau will hold a joint rally; the date is pending.

There were three resolutions: 1) to have all imported and Canadian foods that are irradiated clearly marked as such; 2) to revise the section of the highway code which allows only handicapped drivers an identification sticker for their cars since many handicapped people, including children, are driven by others who should be able to park in the specially designated areas. An identification card should be given to the handicapped so that it may be placed in the window of whatever vehicle is used for transportation, and 3) the resolution that all new tractors and farm tractors now in operation be equipped with roll bars is being looked into to see if this safety feature has been made into law.

A Constitution Committee has been formed. If there are any changes to the Constitution that you would like to see made, have them brought forward before May 1988.

Florence Ellerton, Agriculture Convener, obtained a copy of the booklet "From Sharing the Work to Sharing the Power" for each County President. It is written for farm women and introduced by Michel Pagé, Quebec Minister for Agriculture, Fisheries and Food. This very informative booklet's

Local dignitaries, families and friends gathered early last December to honour Hemmingford, Que., Olympic Torch bearers, one of whom was Gesche Schimelpfeng, Hemmingford WI member. Gesche, who had been training every day for her December 11 run, and had the one kilometre

down to five minutes, received a commemorative plaque. On the day of the run, Lucy French captured this proud moment for Gesche, seen here with, 1, Daniel Johnson, Quebec Minister of Industry and Commerce, and Pierre Cadieux, the federal Minister of Labour.

three-year plan is to make the farm woman more aware and more informed of her status on the farm, her options, and the potential available to her.

Sid Stevens and Andy Barrett from the Sun Youth Organization spoke to the members on child sexual abuse and presented kits containing information on how to recognize sexual abuse, what to do, and who to contact, etc.

Each member received an informative kit "National Clearinghouse on Family Violence" which is put out by Health and Welfare Canada.

Elections will be held for all offices on the Provincial Executive and for Provincial Conveners at the May Convention. Nominations are to be sent to Mildred Robinson.

Voting delegates were named to attend the FWIC Conference in Newfoundland. Quebec is allowed 10 voting delegates and as many as 15 visitors.

**ADELAIDE HOODLESS - Domestic Crusader** by Cheryl MacDonald  
Dundurn Press Limited, 1558 Queen Street East, Toronto, Ontario, M4L 1E8, \$19.95 cloth and \$9.95 paper.

By means of quotes from Hoodless family papers and publications of that era, Cheryl MacDonald gives a realistic portrayal of Adelaide Hunter Hoodless' life and of the



times in which she lived. The book follows Adelaide from her childhood spent on a farm near St. George, Ontario, through to very active, full years in the Hamilton area, where she lived after her marriage to John Hoodless, a prominent business man, until her death while making a speech in Toronto on the topic "Women and the Industrial Life."

As the youngest of a large family she learned responsibility and gained confidence and an ability to get along with others. Adelaide lived in Victorian times, which made it more difficult for her to achieve her goals as we can perceive by this quote from the *Toronto Empire* in 1893. "Hitherto it has not been the correct thing, from a Canadian Society standpoint, for a woman to speak on a platform. But now, for the first time a Governor-General's wife has given a public address."

In her time Mrs. Hoodless was considered somewhat of a radical, but she was a strong advocate of the family concept with a woman's main concern being the welfare of her family. Said Adelaide, "A woman who has not succeeded in training her sons to vote so that they will guard their mother's best interests and the best interests of the nation is not herself worthy to vote."

Adelaide was dedicated to the welfare of women and their families. She believed that to be efficient homemakers and mothers training was necessary. Therefore she persevered to have Domestic Science taught in all public schools by teachers trained in the science. In referring to the Agricultural courses taught at Guelph she commented, "Now if this Scientific culture is so necessary for the development of farmers, is it not equally necessary for the farmer's wife, as we are told that it is not good to be 'unequally yoked.' Is it of greater importance that a farmer should know more about the Scientific care of his sheep and cattle, than that a farmer's wife should know how to care for her family?"

The concern for the welfare of women and their families prompted the formation of the first Women's Institute in Stoney Creek in

1897. Of this event, her son Bernard recalls, "It was my privilege as a boy to hitch up her favourite horse, Scotty, and drive her down to Stoney Creek on that stormy night of February 19, 1897. I can still remember the meeting in the old hall, up a rickety flight of outside stairs, and sliding into a seat at the back and wondering what it was all about." One hundred and one women and Erland Lee had gathered at Squire's Hall.

Through all the associations with which she was associated, YWCA, VON, Council of Women, etc., Adelaide Hoodless worked for Domestic Science Education. A forceful, humorous speaker she pursued her vision relentlessly by meeting with and obtaining the support of Laura Rose, Lady Aberdeen, Madge Watt, George Ross, former Premier of Ontario, Dr. Mills, Principal of Ontario Agricultural College, Richard Harcourt, Ontario Minister of Education, and Sir William Macdonald, benefactor of Macdonald Institute at Guelph and Macdonald College at Ste. Anne de Bellevue.

All who are interested in promoting the welfare of the nation and the world should read this book. "There is still a need for women with imagination, dedication and energy" as had Adelaide Sophia Hunter Hoodless.

Reviewed by Gwen Parker  
QWI Past President

## IN STITCHES

by M.Elizabeth  
Jennaway-Eaman  
Faculty of Education



My thanks to June Lamey for taking the time to write and comment on the information which I gave on trapunto in the November Journal and to June Kelly for sharing the letter and the information which she has supplied to those asking for more details.

I base my judging on the rules determined by the executive and the convener, and I ask for all the information which has been sent out to

people concerning the competition.

I agree that there are traditional ways of working and machine stitching cannot be considered traditional or hand work. I omitted to mention that back stitch is also an acceptable and a more secure way of creating the design. Since trapunto is traditionally worked from the backing fabric, then the reverse of back stitch will show on the front of the work. However, it is also possible to work from the face of the fabric and, since the information supplied does not specify working from the reverse, either way will be accepted.

Keep the slits as small as possible. A double row of slip stitches may be use to close the slits. When closed they should lie flat; the edges should meet but not overlap or pucker.

Since the Italian trapunto used a narrow linear design, it was stuffed with 8 ply wool rug yarn inserted using a bodkin or other blunt needle. This method is suggested in the information supplied and is also acceptable if it suits the design.

## Thank You

Anne Robertson, a member of Hemmingford QWI became Provincial Publicity Convener in 1974 and since that time has had a long and close association with *The Macdonald Journal*. When Anne went to Kenya to represent QWI at the ACWW conference she wrote special articles for the Journal. As well she handled Public Relations for the FWIC when she was Area Vice-President to FWIC for Quebec. For some time now her column Safety First has been a regular feature, and she has also been a member of the QWI Editorial Committee for the Journal. Anne has decided to take a rest from these duties. I would like to thank her for her efforts on behalf of the QWI and the Journal and for her friendship over the years. It has been a pleasure to work with her. Elsie Prevost will be writing the Safety First column, and I look forward to working with her.

Hazel M. Clarke



## WITH THE BRANCHES

**ARGENTEUIL:** Arundel listened to an article from the Christian Science Monitor about children in foreign countries being exploited and made to work in factories under inhuman conditions. **Brownsburg** listened to a brief which had been submitted to Finance Minister Michael Wilson by a concerned group of Canadians. This group, comprised of Pollution Probe, Canadian Wildlife Federation, the Assembly of First Nations, Greenpeace, and biologist David Suzuki, claims that Canada's contribution to World Bank Programs (\$300 million in 1986) is helping to bring about the greatest biological disaster since the extinction of the dinosaur. For example, rain forest damage caused by the building of two dams in India amounted to the flooding of over 40,000 hectares of forest. In Brazil an area of land the size of Britain will be deforested. At this rate, three quarters of a million species, because of the loss of their habitat, will likely be driven to extinction by year 2000. **Dalesville-Louisa** reports that a Listening Training Program from the Listening Centre in Toronto is on the curriculum of the Laurentian School Board as well as other areas in Canada. The drawing of the afghan, kindly donated by Lulu Dixon, took place and the winner was a young lady from Georgia. Members visited CAPAR, a workshop for the mentally handicapped in Lachute. Celine Perron, animator of the workshop, gave them a detailed report on the work done at CAPAR. The handicapped do have ability and potential if it is brought out, and individuals are evaluated towards their possibilities. They all saw the work that is being done. **Frontier** a Roll Call was to tell of your favorite woman of the year. Some mentioning the good works and kindness of neighbours. They listened to guest speaker, Louise Massicotte, who spoke about wills. **Grenville** enjoyed having their County President, Joan Griffith, present, and she showed them slides of the trip she and her husband took to England, France, West Germany, Switzerland, and Holland. **Jerusalem-Bethany** enjoyed listening to Dr. Graeme Decarie, who spoke on Korea and China. **Pioneer** members heard of the need to improve the vocational education programs in school to attract and better prepare students to meet the needs of industry. There must be an improvement in written communication skills and students must learn to meet the demands of the fast changing high tech world. **Upper Lachute** (East End) branch received 2nd prize for the Group Project at the Fair.

**BALDWIN CARTIER:** Lakeshore heard from guest speaker, Susan Morgan, M.Ed., P.Dt. Her topic was "Nutrition for Women." Susan is the daughter of Sally Morgan, visitor from the WI in Wales who was instrumental in introducing members to our new branch during her stay last year.

**BONAVENTURE:** Grand Cascapedia held a meeting at the Camp Brule on the Little Cascapedia River and answered the Roll Call by bringing in jams and pickles for the St. Jules Residence. They are busy selling tickets on a handmade afghan and matching cushion and held a rummage sale. **Marcil** Agriculture Convener, Bertha Hayes, gave details of a law passed by

the Quebec government in July 1986. This law is described in a guide now available concerning women becoming legal partners in farming operations. **New Richmond West** brought articles to one meeting which were to be taken to Mary's Boarding House in St. Jules. These articles to be used as prizes in the senior's weekly bingo games. Guest speaker, Mrs. Duvuoa, spoke about her work as a counsellor in British Columbia prior to her move to this area where she is employed at the Alcohol and Drug Rehabilitation Centre in Maria Reserve. **Port Daniel** celebrated 65 years for Home and Country! The community and surrounding area has benefited greatly as the result of the formation of the branch, beginning as early as 1926 when the Community Hall was opened with a concert sponsored by the WI members.

**COMPTON:** Brookbury entertained their families with a family dinner. **Bury** has entertained other Institutes at their meetings. **East Clifton** heard from Mrs. Paul Taylor who spoke on her experiences of ranching in Montana and Wyoming, and told a true story of a river on the ranch that was "too thick to drink but too thin to plough." **Sawyerville** had a supper in town and saw a Chrysanthemum Show in Sherbrooke.

**GASPE:** York Mrs. Ella Palmer and Mrs. Elaine Patterson were presented with their 25-year pins. At the 1987 WI Fair, Mrs. Mildred Stanley won 4 cups for most entries, most 1st prizes, most prizes, and for assorted entries.

**GATINEAU:** Wright (motto) If you think education is expensive, try ignorance. Brought in clippings on health tips to one meeting and heard information on lower back pain.

**MEGANTIC:** Inverness (motto) There's no trick to spreading sunshine, just treat everybody to a smile. A quilt was quilted during the summer; their card party was successful, sent a donation to the Oddfellow's and bought and distributed Christmas gifts for the people from their vicinity who are in the Wales Home. **Kinnear's Mills** served meals one day to workers who were building Jacques Payeur's new house as the former home had been demolished by a tornado. Health and Welfare Canada have a hot line for reporting problems with medical devices such as pacemakers, contact lenses, etc. To report a problem call: 1-800-267-9675. (Motto) one tree can make a million matches, but one match can destroy a million trees.

**PONTIAC:** Clarendon sponsors the "Clarendon Home Makers;" these are eight girls between the ages of 12 and 15 years. They hold monthly meetings and compete at Shawville Fair. **Fort Coulonge** had a very interesting guest speaker: Mrs. Pam Rothman, an Institute member from Pietermentzburg, Province of Natal, South Africa. She explained that many Institutes in South Africa were in large cities. Her branch had 72 members with an average attendance of 45. They hold monthly meetings with a guest speaker each month. With such large groups, individual members have very little say in planning meetings as this is done by the executive and there is no personal contact and very little time to socialize. Mrs. Rothman travelled from Ottawa with Mrs. C. Mavor, a granddaughter of Mrs. G. Bryson,

one of the founders of the Fort Coulonge branch. **Wyman** had three quilt tops donated which will be made up for fire victims. They took a trip to Lotus Land, a Bible Theme Park.

**QUEBEC:** Valcartier celebrated their 50th anniversary. This celebration was shared with Megantic County. They visited the beautiful region of Beauce during the summer, had a guided tour of the Vachon Bakery, visited a ceramic plant, and a textile outlet, Moulin Blanc. Valcartier's Annual Labor Day Picnic and Chicken Barbecue was once again a big success. Thanks to the expert cooking of members' husbands and friends, the 200 half chickens were finger linkin' good!

**ROUVILLE:** Abbotsford during the summer on Monday afternoons met in the Hall. People played cards, did a little needle work or played Scrabble, and had a cup of tea and a snack at the end of the afternoon.

**SHEFFORD:** Granby Hill A money donation was presented to La Fondation du Centre Hospitalier de Granby Inc. in memory of a devoted and loved member of our branch, Helen Shanks. Enjoyed the County picnic. In a provincial contest, the judging of farms and surroundings, Afton and Earl McCutcheon received first prize in St. Joachion. (Motto) little five-year-old Billy was watching his grandmother read the Bible and asked, "Grandma, why do you read the Bible so much?" "Well," was her reply, "I guess you could say that I'm cramming for my final exam." **Granby West** wants us to note that every Aran stitch has a meaning. The Irish Moss stitch represents the moss and peats in Ireland. The Blackberry stitch represents the Trinity, while the Honeycomb depicts the movement of the bee going back and forward.

**SHERBROOKE:** Ascot Mrs. D. Annesley received her Life Membership pin. Served supper to Grace Christian Home and held a bake sale with proceeds going to World Food Day. **Belvidere** gave donations to the Exchange of Students Fund, Lennoxville Hot Lunch for the school, and Heart Foundation. **Brompton Road** invited all Publicity Conveners to their meeting. "The Horror" is residing with Edna Hatch for the next six months. **Milby** had speakers on Cultured Property Act and on Survival of Women in Agriculture.

**STANSTEAD:** The Provincial and National Plowing Matches were held in Coaticook in October. It was a first for the Eastern Townships. Lorraine Harrison, Agriculture Convener, was the Chairperson of the Welcome and Reception Committee for the families of the ploughmen. Her committee entertained with bus tours to see the countryside, lunches in different restaurants, a visit to the Mystery Spot in Lennoxville, and a tour of the Coaticook Gorge, which is a breathtaking spot. Many WI members attended the opening ceremonies and despite the terrible weather it was hoped that the visiting ploughmen and families went home with pleasant memories of the Eastern Townships. The seventieth Annual School Fair in September saw over 1,600 entries brought in.

Darleen Sabetta  
QWI Publicity



# Newsmakers

## ON CAMPUS

MARCEL COUTURE, Associate Dean, Community Relations, has been appointed a consultant to Michel Pagé, Minister of Agriculture, Food, and Fisheries for Quebec. Mr. Couture will serve on a committee to review the workings and the mandate of La Régie des Marchés Agricoles du Québec, which oversees marketing boards and the price of certain agricultural products.

The new "Conseil en Economie et en Gestion Agricole" (CEGAQ), which is similar to CPVQ and CPAQ, has seven committees. Staff from Macdonald College on the various committees include: MR. MARCEL J. COUTURE, Vice President, of the Executive Council, DR. G. COFFIN and MARCEL J. COUTURE, members of the Board of Directors, MR. JACQUES JALBERT, member of the Committee on Data Collection, DR. KISAN GUNJAL, member of the Committee on Finance, MS. FLORE FOURNIER, member of the Committee on Farm Management, MR. MARCEL J. COUTURE, Chairman of Rural Sociology and Rural Extension.

ERNANI FIORI, new Director for Canada of the Inter-American Institute for Cooperation in Agriculture, visited our campus December 8 and 9. He met with many staff interested in the Latin American/Caribbean region and presented DEAN ROGER BUCKLAND with a superb collection of books dealing with development in that area.

MICHAEL OERTLE and JAMES PEEL, Dip '82, were fall visitors to the Diploma and Extension offices. Michael is in Switzerland with Swiss-Air and was back in Canada on a seven-week holiday, and James is in the cattle fitting business working out of Masson, Que.

The Department of Entomology offers congratulations to FAISAL ELHAG, PhD; DANICA BAINES, MSc and BERNARD LANDRY, MSc, who were awarded their degrees at Convocation on Monday, November 2, 1987. Faisal has returned to his home country, Sudan. Danica is now working on her PhD in the Department of Microbiology

and Immunology at Queen's, and Bernard is also working on his PhD at Carleton University in Ottawa.

DR. JORDAN INGRAM, Department of Microbiology, presented a seminar at the Defence Research Establishment in Alberta in December and while there met Macdonald alumni DR. ED LAISHLEY, University of Calgary; DR. K.J. CHENG, Agriculture Canada (Lethbridge); DR. LLOYD WHITE, DRES; DR. A.R. BHATTI, DRES, and DR. JIM HO, DRES.

PROFESSOR A.R.C. JONES of Woodland Resources was presented with the Canadian Forestry Association's Trees and People Award at the 20th Annual Meeting of Woodlot Extension Specialists, held at Rodd's Brudewell River Resort, Roseneath, P.E.I.

Having attended the 79th Annual meetings of the American Society of Agronomy and the Crop Science Society of America in Atlanta, HAROLD KLINCK, brought news of former Plant Science students attending the meetings including GAETAN BOURGEOIS, now working on his PhD at the University of Florida, MARIE-CLAUDE FORTIN, pursuing her PhD at Michigan State University, and DIANE MATHER, completing her PhD at the University of Guelph.

DR. JOHN MOXLEY, Emeritus Professor of the Department of Animal Science was the recipient of Honorary Life Membership in the Canadian Society of Animal Science.

VINCENT SEREM has completed his MSc thesis in the Department of Agricultural Engineering and has returned to his home in Kenya. ODETTE MENARD, also in Engineering, is thesis writing and has taken a position at Alfred College.

DR. HOWARD STEPLER, Emeritus Professor, Department of Plant Science, has been elected to the Board of IRRI, the International Rice Research Institute in the Philippines.

## CANADIAN PACIFIC SCHOLARS 1987-88

LOUISE MORIN is a NSERC scholar in an MSc program in the Department of Plant Science under the direction of Dr. Alan Watson. Her research involves the development of a fungal pathogen as a bioherbicide for the control of field bindweed, which is a major weed problem throughout Canada. Louise is the holder of a CP Travel Fellowship. TANYA SEARLE is in a PhD program in the Department of Entomology under the direction of Dr. W.N. Yule. Her research will identify and investigate fungi that are pathogenic to soil-dwelling stages of certain insect pests. Success in this area could well lead to the use of natural organisms as biological control agents for harmful pests such as the Colorado potato beetle, the common June beetle, and the carrot weevil.

## OFF CAMPUS

J. WILLIAM RITCHIE, BSc(AGR)'51, has been appointed to the Board of Directors for T. & M. Winter Ltd., Nfld.

EDGAR LEROUX, MSc(Agr)'52, PhD '54, DSc '73, has been named an Officer to the Order of Canada by Governor General Jeanne Sauvé.

In a reorganization of the P.E.I. Department of Agriculture a Planning and Operations section, responsible for planning, information, computer services, and administration, is under the direction of DAVID ROGERS, BSc(Agr)'57. Marketing and Extension Services will be provided in one branch under the direction of DAVID FAULKNER, BSc(Agr)'68.

DR. PAUL BURGESS, BSc(Agr)'62, MSc(Agr)'64, has been appointed superintendent of Agriculture Canada's experimental farm at Nappan, N.S. As a specialist in animal nutrition, Dr. Burgess has been working at the Fredericton, N.B. research station since 1967.



WARREN GRAPES, Dip '65, has been elected President of the Quebec Farmers' Association.

KENNETH MELLISH, BSc(Agr)'67, MSc(Agr)'69, was elected Chairman of the P.E.I. Milk Marketing Board.

MOHAMED FARIS, PhD '71, was recently appointed the President of the McGill Graduates' Society of Egypt.

MARC DAVID, BSc(Agr)'78, has been appointed Director of Marketing, Pharmaceutical Products Division of Boehringer-Mannheim, Canada.

NICOLE PERREAULT, BSc(Agr)'80, is the new Account Co-ordinator for Hoffmann-La Roche Limited for the south-western Ontario region. Nicole has an MSc from the University of Guelph in poultry nutrition and was with a major micropremixer in eastern Canada.

News from REID MACDIARMID, BSc(Agr)'84: Formerly from Riverview, N.B., since June 1985 Reid has been with Pfizer Canada as Territory Manager of Northern Alberta. He married Colleen Heck from Saskatchewan in August 1986, and they live in Edmonton. Reid spends a great deal of his time travelling in the outlying areas.

THERESE ROBERT, BSc(Agr)'84, recently accepted a position with Agriculture Canada's Communications Branch in Ottawa.

YVES GOHIER, BSc(Agr)'85, is the new Account Co-ordinator for Hoffman-La Roche Limited for Quebec and the Maritimes.

CLAUDE BORDUAS, BSc(Agr)'85, has been appointed a District Sales manager in Quebec for Northrup King Seeds Ltd. His appointment was effective December 1; before that he had been working in Extension at Macdonald for several months.

PASCALE TREMBLAY, BSc(Agr)'85, has

been put in charge of technical information for *Le producteur de lait Quebecois*. Before this appointment, which started last November, Pascale was editor-in-chief of *le Producteur Agricole*.

KELLEY ALLEN, BSc(Agr)'87, spent nine weeks last summer in the U.K., on a Young Farmers' Exchange as a representative of the Junior Farmers' Association of Ontario. Kelley is with Vetrepharm Inc.

KAREN LYN MUDIE, BSc(FSc)'87, is enrolled in the four-year Law program at McGill University.

#### AGRICULTURAL HALL OF FAME

DR. ELLEN SIGNE McLEAN, President of the Associated Country Women of the World, who with her husband John McLean, BSc(Agr)'47 live on a farm in Eureka, N.S., and DR. DONALD McQUEEN SHAVER, DSc'83, were 1987 inductees into the Canadian Agricultural Hall of Fame. Dr. Shaver is founder of the Shaver Poultry Breeding Farms Ltd., Cambridge, Ontario.

#### Coming Events

|          |       |                                    |
|----------|-------|------------------------------------|
| February | 10    | Founder's Day                      |
| February | 12-14 | Macdonald Royal and Livestock Show |
| March    | 12    | Raptor Raffle                      |
| April    | 13    | Athletics Awards Banquet           |
| May      | 17-19 | QWI Annual Convention              |
| June     | 3     | Convocation                        |

#### What's Happening?

Where are you? What are you doing? What have you heard about your fellow grads? New jobs, promotions, awards, retirements. From a first job through all the steps up the ladder to retirement and post-retirement — keep us informed on what's happening so that we can pass the news along to your fellow grads. Any news you would like to share with us would be welcome. We delight in hearing from you and about you. Send information to Hazel M. Clarke, Macdonald Journal, Box 284, Macdonald College, Que. H9X 1C0.

#### DECEASED

J. HUME GRISDALE, BSA '23, of Toronto, Ont., on December 17, 1987.

A.P.C. LE NEVEU, MSc(Agr)'25, in 1982.

MORTIMER W.C. HARDY, BSc(Agr)'36, on January 5, 1988.

ELIZABETH H. (THOMPSON) BANCROFT, BHS '39, of Beamsville, Ont., on July 12, 1987.

EDWARD D. MUNRO, BSc(Agr)'48, of Truro, N.S., on October 11, 1987.

ROBERT REDELMEIER, BSc(Agr)'49 of Toronto, Ont., on December 5, 1987.

ELINOR (WOLFF) FOWLER, BSc(HEC)'50 of Elmhurst, N.Y.

GEORGE C. BROWN, Dip '52, of Dorval, Que., on December 17, 1987.

GRAFTON VAN LOO, Dip '52, of Kingston, St. Vincent, West Indies, on May 4, 1987

ROLAND J. BRUNET, BSc(Agr)'58. No further information.

MOHAMMED SALEEM KHAN, BSc(Agr)'63 of Dollard des Ormeaux, Que., on September 22, 1986.

**THIS SPACE IS  
RESERVED FOR  
YOUR AD.**



# Keeping in Touch

## Corrections

In the November issue of the Macdonald Journal, page 8, the first paragraph of the article "Plant Breeders' Rights for Cultivar Protection" should read:

The Universal Declaration of Human Rights adopted by the United Nations Organization in 1948 states: "Everyone has the right to protection of the moral and material interest resulting from any scientific, literary or artistic production of which he is the author." The application of this principle in the fields of scientific and technological development in Canadian agriculture through the Patent Act and other means of ensuring proprietary rights has been highly beneficial. However, such protection has not been available in Canada for new crop cultivars (varieties) developed by plant breeders. There is little opportunity under present Canadian laws for the breeder to recover developmental costs.

In the article "Mycorrhizal Fungi and the Transfer of Nitrogen from Legumes to Grasses" the photos on page 17 were reversed. The following are the correct photos with their captions.



This photo shows corn interplanted with soybeans having received the recommended amount of phosphorus but growing in sterilized soil.

The editor regrets these errors.

### Not Nit-Picking but...

I enjoy the page "Fun Fact Fable Fiction" by Professor Estey for its interest and humour. I'm not nit-picking but the last item "Keep on Counting" in the May issue has me wondering if there is a typo.

Sterling Parker  
Rock Forest, Que.

Editor's Note: Thanks to Sterling Parker and others who have commented on Professor Estey's "4Fs" and on that particular item. May I refer you to the lead item in "Fun Fact Fable Fiction" of this issue.

### The Journal at Sea!

Recently received what I assume was your most recent publication (August 1987) of the Macdonald Journal. It takes the mail a considerable amount of time to reach me, but it does eventually. It is now November here in the northern Arabian Sea and, you guessed it,



This photo again shows corn interplanted with soybeans, this time without phosphorus but colonized by a mycorrhizal fungus.

the "war" drags on. I hope we will be out of here early in the new year and this nonsense here will cease once and for all.

The Diploma Corner article "Diploma Graduates' Reunion" discussed forming a Diploma Graduates Association. It's about time something of this nature was orchestrated. Angus MacKinnon and Neil Richardson, the instigators for this association, deserve a real "Bravo Zulu" for such an idea.

For the many years that I have been away from Montreal, the Macdonald Journal has been one way for me to find out what is going on at Macdonald College. Recently I read about the new barn and was impressed and pleased that it was finally built. Your magazine and a few other agricultural publications are the only sources of information as to what is going on in Canada aside from listening to RCI (Radio Canada International) which I can pick up. Your Journal is really appreciated at this time because it lets me get away from what is going on here right now. I'd sooner not be here - tension is high and nerves are very short.

Bill Shaver, Dip '81  
Deck Engineer, U.S. Navy

### Research Articles

As there are few English-speaking farm families left in the Vaudreuil-Soulanges area, we rely on the Macdonald Journal for news affecting English farmers in the rest of the province. Your articles on research carried out at Macdonald are much appreciated.

R.L. Kent Hodgson, Dip '60  
Hudson, Que.

### Wonderful!

A brief note to say that the August issue was wonderful! So much news and so many pictures of people I know.

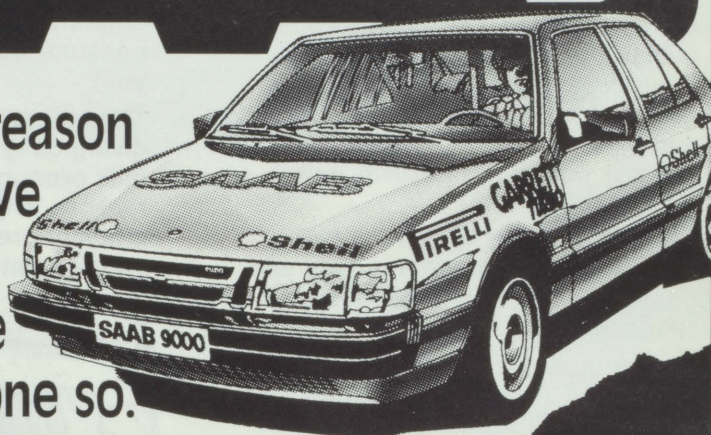
Frances Wren  
St. Andrews, N.B.



Maybe it doesn't  
walk on water,  
but it's not afraid  
to get its feet wet.

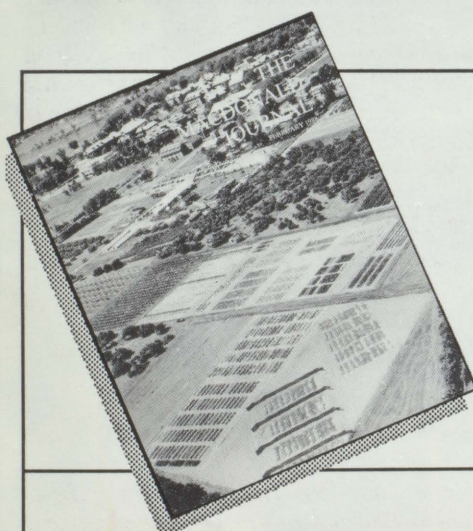
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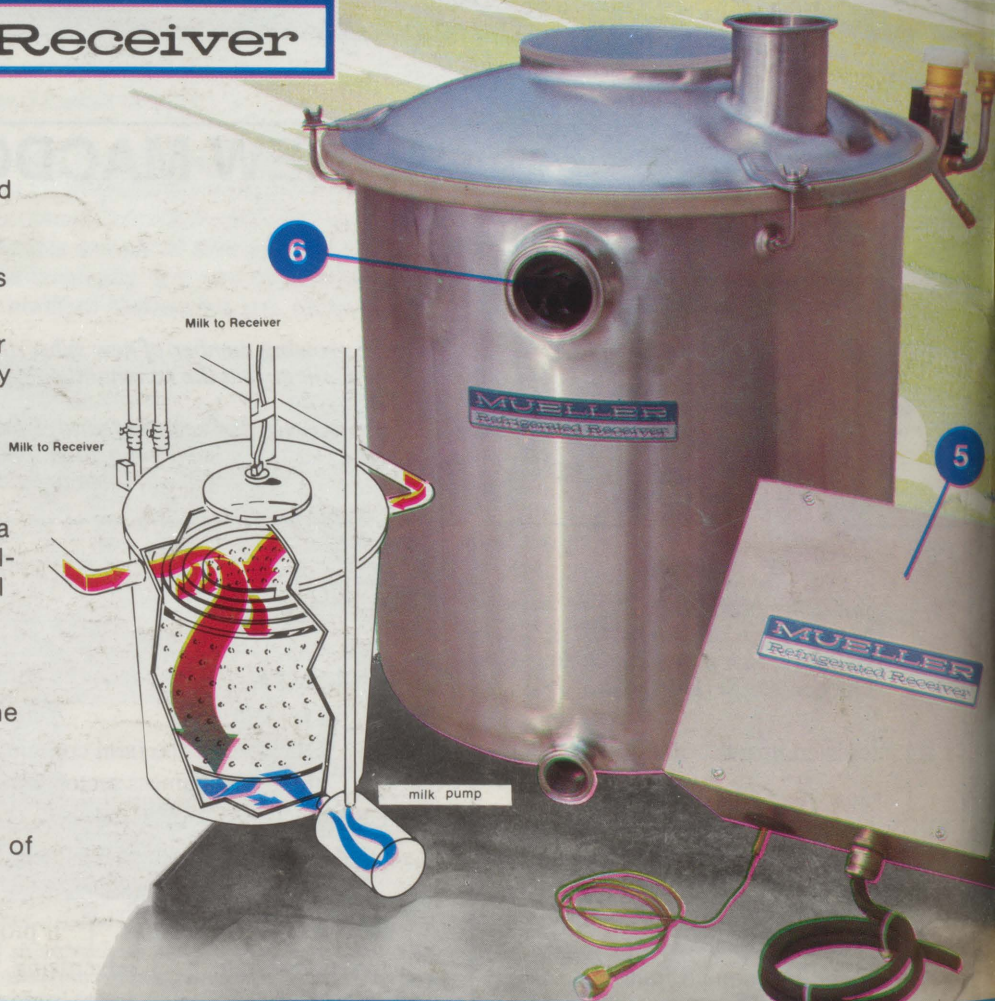
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